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The Employment Manager—a New Factor in Industrial Relationship

Of All Standardized Agencies a Service Department Can Put at Disposal of General Executive, the Greatest Is a First Class Man—The Ideal Wage System

By EDWARD D. JONES
Director of Course Materials, Employment Management Section, U. S. War Industries Board

The general executive is a correlator. He is a balancer of claim against claim. His business is to define the general aim and to harmonize all lessor or intermediate achievements with it. To do this work well, he must be supplemented by specialists who do not correlate or determine general aims or policies, but who concentrate upon some special phase, and upon demand furnish to him standards and reliable standardized agencies. The line executive in war determines where a battery shall go and what it shall do, but he depends upon staff men to breed a reliable artillery horse, and to design convenient gun carriage and to prepare service tables for sighting guns.

In industry, the function of staff departments is already seen clearly with reference to mechanical equipments. The general executive desires a works, but he depends upon the architect to design building members which will sustain the probable stresses. He desires a product, but he organizes a designing and drafting department to control the dimensions of parts. This principle of staff service is now being carried over into the field of human administration. General executives demand well-chosen men, men physically examined and pronounced safe for the work they are to do, men who are properly paid, and men who are so handled that they become permanent, contented and loyal co-operators in the general plans of the enterprise. Of all standardized agencies which a service department can put at the disposal of a general executive, the supreme one is a first-class man.

An Extension of the Division of Labor to Foremanizing

The distinction just drawn between line and staff is a case of the application of the principle of the division of labor to administration. This principle is being applied rather vigorously just now at a lower level in the hierarchy of industrial administration. It was one of the merits of the movement known as "scientific management" that it called attention to the absurdly wide range of functions which the average foreman was endeavoring to perform. This officer, until a short while ago, was attempting, in most establishments, to hire men and set their wages and discharge them; to find work for men and machines from hour to hour; to recommend equipment for the shop, and keep the equipment in repair; to give an offhand opinion as to when future work would be completed, and what it would cost to maintain a stock of raw materials, to preserve discipline and to furnish the office with such records as it required.

It is needless to say that the degree of efficiency attained with such supervision was low. "The jack of all trades is master of none." This quotation found its proof in machinery operated at a low percentage of its possibility, in time lost in hunting tools, in waste of stock, in delayed deliveries, in unreliable quality and in inefficient workmen, discontented, and frequently venting their grievances in strikes.

The remedy is functionalization. This means that groups of related functions should be put in the charge of service departments, such as the stock room, the planning room, the tool room, the designing department, the engineer in charge of repairs, and the estimates department. In conformity with this idea there has come into existence, in thousands of businesses, a department (whether administratively distinct or called by any name suggesting it or not) in charge of the supervision of a considerable portion of the relations between employer and employee.

In this way the foreman is relieved. He no longer is a "bouncer." He no longer sells jobs, or practices nepotism or holds his pets in soft jobs. He has not the easy device of covering his own incompetence by firing a man, but must suggest a transfer which may show his employee able to give satisfaction in another shop where the foremanship is different. He gets a more even and dependable run of workmen from the employment department than he could provide for himself. And he is free from other distractions to become the teacher of the shop.

Vocational Guidance

Vocational guidance is a sister movement to vocational education. It has made much progress in connection with the work of the public schools, supplementing parental advice, which is no longer adequate in these days of innumerable trades. It offers to the pupil a new reason for taking interest in his school work, namely, his interest in his own future career.

Vocational guidance has shown us the necessity of analyzing industrial tasks to find out of what they consist, in what their peculiar difficulties lie and what qualities they demand of the worker. It has shown the need, also, of studying the mentality of the youth and of endeavoring to understand his temperament, so that work may be found for him which accords with his talents, which possesses interest for him and which has power to evoke his enthusiasm.

This experience of the schools in the guidance of youth has caused us suddenly to realize that, for most communities, the only vocational counselor yet available is the man who does the hiring in the factory. And so hiring takes on a new significance. It is no longer giving out jobs; it is, or ought to be, vocational guidance. We demand for this important function skill and specialized experience, and a high ideal of responsibility to the person employed.

The Progress of Industrial Training

The school records of this country show that about one-half of the children leave school by the end of the sixth grade. They also show that less than three-fourths of the children are in school as much as three-fourths of the time. These conditions are largely the result of the fact that the public schools do not provide the education needed by children of concrete or motor temperament (the hand-minded children), and that the vocational ambitions of the child and of the parents for the child are not properly utilized by the school as a source of interest and energy.

The result is that there are sent to the employer candidates for labor who require technical training if they are to be lifted out of "blind alley" occupations and made valuable employees. This raw human material is so ignorant of the significance of the crafts that it is preyed upon constantly by monotony and hostility of mind, which is produced by lack of understanding of the significance of the work performed.

The answer is industrial training, and even general education, carried on by the employer. Such activity demands the general supervision of the employment manager.

The Evolution of Psychology

In recent years there has been budded off from philosophy a science of the mind which, adopting the laboratory process, and following the conservative methods of inductive research, has accumulated a store of knowledge concerning the nature of the sensory impressions, the character of mental action, and the types of mental imagery. It has done much to aid in classifying the characteristics of personality and to define the various types of temperament. It defines for us various types of arrested development, and various classes of unbalanced personalities.

This science now offers us the possibility of selecting from the applicants for jobs at a factory office those persons who are adult in physical development, but still have the minds of children. It identifies the self-centered paranoics, and those bright and optimistic persons who are certain, because of temperamental instability, to endure for a short time only or to become trouble-makers.

As such persons may comprise from 5 to 15 per cent of all applicants, the importance of careful examination is obvious. This identification is not for the purpose of refusing them work, but to give them work which is within their powers, and to provide them with a supervision which is more intimate and constant and forbearing than normal persons require.

Psychology also tells us much of the means of impressing the memory, of holding the attention and of arousing the interest. It explains to us what the learning process is. It pictures the various instincts and their corresponding emotions, so that we can see why there is attraction in matched records and in the idea of a game. In all this it leads up to and elucidates the simple but permanent basis of discipline and loyalty.

So fertile is this new science in suggestion that we can foresee the time in the near future when the employment manager will be expected to be well-grounded in it and to keep himself in close touch with its evolution.

The Evolution of Wage Systems

The conviction is general among employers that the setting of a wage rate is perhaps the most vital matter in the relation of employer to employee. The employer needs to have such investigations made as will reveal the current market rates for different types of labor power. He needs an expert to supervise patiently the prolonged process of forming a wage scale in which each job in the factory will find its proper relative place.

It is coming to be realized that wages can never be made wholly satisfactory until greater definiteness is attained in measuring the basic factors involved in it, namely, the worker's talent, the quality and quantity of effort required by the task, and the working conditions. Where low rates of pay are concerned it is essential to obtain the local cost of living by first-hand inquiries. Where excess performance is required, it becomes a problem for the expert to say what excess above standard wages is required.

The ideal wage system is that of the man in business for himself. For such a man reward rises and falls in perfect accord with his performance. The endeavor of executives to approximate this wage in the complexities of modern business has led to the devising of many kinds of production bonuses. Where these bonuses are sufficiently localized upon an individual shop, and pertain to a sufficiently definite and measurable aspect of performance, and where they are properly founded upon an hourly wage rate and a standard of performance, they have given satisfaction. To plan such bonuses in strict accord with the conditions of the individual business the employer needs the services of a competent department.

Safety First

The sense of responsibility felt by the modern employer for his men has led to a movement to cut down

the large toll of bruises, burns, infections, mutilations and deaths in industry. This impulse has been supplemented by workmen's compensation laws, which enforce responsibility upon those employers who do not voluntarily assume it.

The study of accidents shows that they result from bad management in the shop, from equipment allowed to fall below standard conditions, from lack of training, from labor turnover, from lack of physical examinations and lack of job analysis. Above all, they are caused by the absence of a judicious attitude of mind among employees. This fact puts the problem more largely within the domain of the employment manager than of the engineer.

Hygiene, Sanitation and Medical Aid

A great advance has been made in medical science in recent decades. This advance has laid bare the intimate relation between good water, ventilation, digestible food, regularity in private habits, and health in the home on the one side, and accident rates, fatigue, irregularity in attendance at work, antagonism of mind and strikes on the other. The complicated interlacing of these factors accounts for the profitableness of the health work which has been undertaken by progressive employers.

The Democratic Shop

It is needless to refer to the steady drift of industry toward democratic control. This drift may make itself felt to an employer as the mandate of law, and it may come as the dictate of organized labor. On the other hand, if it is not with willing mind, it may come into an employer's business in the form of a welcome co-operation with his employees, as a getting together to settle questions of common interest, or as a process of taking from his shoulders a portion of the load of minor executive responsibilities. Through such a sharing the employer may give to his employees scope for suggestions and criticisms, and he may give them a voice in determining working conditions. If he makes these experiments tactfully and sincerely, he is altogether likely to find that production is improved, that the best employees seek his plant, and that discipline is largely self-enforced.

There is a wide field of activity having to do with the efficiency of the worker, and including such matters as thrift, legal aid, insurance, pensions, housing, recreation, etc., in which the employer will desire that as large a portion of the initiative may come from his employees as possible. The employment manager's task is to guide these activities into fruitful channels in as neutral a manner as possible. He may be a sort of power behind the throne, but he should be modest enough to give the credit to others for what has been done whenever possible.

The Ideal of Service

The ideals of truth and service have, for many years, been prominent in the world of advertising and selling. Only short-sighted persons still believe that to make a sale terminates a business relation. It is much more in harmony with the best practice to say that a sale begins a mutually profitable relation. Henry Ford once asked his agents to remember that they were not selling machines, but transportation.

If this concept of a service relation be carried into the interpretation of the labor contract, it will be seen that, in reality, an employer "sells" his job to the employee. He "sells him," or satisfies him, as to the wages, the working conditions, the task to be done, and the policies of labor management in general. Then his problem is to keep him "sold."

But it should not be a mere job that is sold. A permanent relationship should be entered into—a relation of mutual aid and protection. To quote Mr. Ford again, "It is not a living but a life we are trying to provide for our workmen."

This ideal of service has led American business men to venture out constantly beyond what were once considered to be the boundaries of strict business. The surprise which has usually accompanied such ventures has been their profitableness. Where an employer has had faith, superior employees have gathered to him and built up a permanent and enthusiastic force around him.

The Great War

The coming of the great war has intensified the strength of all these evolutionary movements above referred to. It has done so because the war has made efficiency seem more necessary, and because these movements are all calculated to construct a more firmly knitted and economical social order.

The present shortage of skill commends to us a stricter labor accounting, both in the labor market at large, at the hands of a public employment service, and with the individual business, through the work of an employment department. The same necessity brings us to intensive methods of training skill, with careful vocational guidance, so that every man, young or old, may find his highest work. It implies, again, safety, sanitation and medical aid in industry to maintain the working force at par.

Enthusiasm for the common cause of country is a great lesson in the psychology of mass action for industrial leaders who have never learned the power of common cause with their workmen. Wages and prices have passed through such advances as to demand the closest attention to the wage-setting process.

The great slogan "To make the world safe for democracy" is certainly being carried over from politics into the field of industry. Democracy will not require less skill of economical leadership than one-man rule—it will require more. And this is true, because its aims are broader, and because it attains its aims, not by brutal coercion, but by a process which requires a finer man. The process is one of persuasion and due compromise; it requires purity of purpose. Business management now, more than ever before, needs a special class of executives, who shall be its tribunes with labor and its statesmen in framing labor policies.

It has already been pointed out that the United States Employment Service has undertaken to supply war plants with labor; clearly it is incumbent upon the manufacturer to make the best possible use of that supply when it has been made available for him.

This the employer realizes; he sees that—if the maximum of efficiency is to be attained—the efforts of the United States Employment Service in his behalf *outside* the plant must be supplemented by his own *within*. This means the reduction of his labor turnover, which, in turn, will mean increased production. The question that he asks himself is, "How?" and under present con-

ditions there is but one answer—improved working conditions for his employees. He must take the best possible care of his labor if he would keep it, and his production and his credit with the United States Employment Service suffer if he does not. With this problem before him in general terms the employer turns to his employment manager, from whom he has the right to expect advice as to definite methods to be pursued and suggestions as to the specific application of well-established principles to the particular problems of his plant.

The Government has seen to it that, if his employment manager has had the advantage of instruction at one of the war emergency courses, the harassed executive need not turn in vain. These courses in employment management are offered to the representatives of manufacturers without charge, and at the express request and under the supervision of the Industrial Service Sections of the several departments at Washington, including the Emergency Fleet Corporation, the Ordnance Department, the Quartermaster's Department, the Department of Labor and the Navy. The organization and direction of the course has been undertaken by the Employment Management Division of the War Industries Board. This division has placed the direction of course materials in the hands of the foremost authorities on employment management in the country; has arranged for the services of large numbers of special lecturers—some of whom are the direct representatives of the co-operating Government departments; has provided for a first-hand study of typical employment departments in plants where a large variety of difficult problems have been solved by the application of principles explained in text and class room, and has seen to it that ample time for practical discussions and the interchange of ideas shall be allowed the students from day to day. The mature employment manager, coming to the course with a solid background of industrial experience and with the problems of his own plant constantly in mind, learns from his contacts there many new devices, finds his point of view broadening, and discovers new avenues of approach. At the conclusion of the course he returns to his own plant strengthened by an accumulation of expert advice which he could have secured from no other source, and stimulated by a vision of new ways in which he can prove himself of value to employer and to employee. He knows not only what ought to be done, but how to do it.

Emergency War Courses in Employment Management, for men and women, are being conducted by the Government in Boston, where Harvard, Boston University and Massachusetts Institute of Technology are co-operating; in New York through the Bureau of Municipal Research; in Rochester at University of Rochester; in Pittsburgh, Carnegie Institute and University of Pittsburgh co-operating; in Berkeley, Cal., at the University of California; in Seattle at the University of Washington. Courses at the Universities of Cincinnati and Chicago are now being arranged for. Employers are invited to suggest men or women in their employ for these courses, which run from six weeks to two months. There are no tuition fees. Employers or individual applicants will be furnished complete information regarding the courses and entrance requirements by addressing Captain Boyd Fisher, Employment Management Division, War Industries Board, 717 Thirteenth Street, N. W., Washington, D. C.

Foundation for the Assumption That 18 Percent of Industrial Accidents Are Due to Defects in Lighting Installation

R. E. Simpson Emphasizes Importance of Adequate Illumination to Maximum Efficiency in War Effort

One of the curious features of the war is the knowledge we have gained as to the comparative importance of various products or activities on winning the war, suggested R. E. Simpson, in his paper on the relation of light curtailment to accidents, at the annual meeting of the Illuminating Engineering Society. We have been told that coal, food, ships, aeroplanes, artillery—to mention only a few—will win the war. In fact, so many things have been mentioned that a visitor to this country facetiously remarked that naming them had assumed the proportions of a national pastime. Anyone may well hesitate therefore to add to the list of individual war-winning essentials, but there can be no objection to directing attention to an item the adequacy and proper control of which will have a vital bearing on the *duration* of the war at least, and that is the ability of the home industries to provide the means whereby our army and navy may be made to function most effectively. Failure of our industrial man power and woman power to support our military and naval forces results in a corresponding curtailment of the war ability of the nation. Anything that has a prejudicial effect on the output of our war industries must be subjected to a searching investigation, and the proper remedy, if such can be found, applied forthwith.

Even now there is an acute shortage of both skilled and unskilled labor, which is being made up, so far as possible, by the introduction of women into industries heretofore closed to them and by drawing on men from non-essential occupations. This process must continue as fast as women can be trained and as rapidly as we can determine just what industries are non-essential. The recently enacted law extending the ages for selective service will have the twofold effect of withdrawing more men from industrial pursuits, and at the same time of placing greater burdens on manufacturers of war materials. In order to alleviate the present labor shortage and the threatened future decrease in the supply of workers, a nation-wide labor adjustment must take place. In addition to this there must be a policy of conservation of labor and the elimination of wastes and leaks, in the following out of which accident prevention will be an important factor.

The Productive Time That Is Lost

The significance of the last statement will be readily appreciated if we consider the effect of accidents in terms of time lost. From the published statistics of a number of States, together with conservative estimates for the remainder, we find that approximately 25,000 persons are killed or permanently disabled, 500,000 seriously injured and 1,000,000 slightly injured each year. Translating these figures by means of the accident severity rates we have a total of 180,000,000 days of lost time. This is equivalent

to the loss of the services of 600,000 men for a full year of 300 working days. This economic loss is distributed over the entire country during a period of one year, and for that reason its effects are not so keenly felt or its importance recognized. If, however, this loss were concentrated on any one of our basic war industries—as, for example, shipbuilding, steel making, munition manufacture or coal mining—it would be nothing short of a national calamity. Even distributing this loss among the four industries named would seriously cripple all of them, and its effects would shortly be reflected by conditions at the battle-fronts.

It is apparent that we have here an important factor touching on the supply of labor, and anything that can be done to curtail this economic loss is worthy of careful consideration. There is a certain percentage of unavoidable accidents—that is, man's prevision is unable to cope with unknown factors, and this is especially true of pioneer work. The best that can be done is to profit by experience and endeavor to prevent the knowledge and experience thus gained from lagging behind practice. A large percentage of accidents may be classed as avoidable in the sense that the application of mechanical safeguards and the observance of safety rules will prevent them. Anything in the form of a practicable guard, of safety education, or of safety regulations that will protect the worker from injury should be welcomed by the plant manager to-day. Past investigations have indicated various influences on the causation of accidents, and prominent among these is industrial lighting.

Light versus Illumination

A survey of 91,000 accidents from the records of the Travelers Insurance Company for the year 1910 showed that 23.8 per cent were due to improper or inadequate illumination. Bearing in mind the progress in the art of illumination during the past eight years, it is hardly possible that this percentage prevails to-day. New factories are lighted by up-to-date equipment, while many old plants have had their lighting systems brought into conformity with modern practice. These are steps in the right direction, and are bound to be reflected in the accident rate. Offsetting this to a certain extent is the practice of many plant managers of substituting high efficiency lamps, both gas and electric, for low efficiency lamps, without providing adequate reflector protection. Notwithstanding the vast amount of expert advice that has appeared in the technical journals devoted to specific industries, there are literally thousands of plants that have not profited by this advice. The directing personnel of these plants, from managers to sub-foremen, do not seem to appreciate the difference between light and illumination, between a reflector and a wire guard.

There is some foundation, however, for assuming that 18 per cent of our industrial accidents are due to defects in the lighting installation. On that basis the services of 108,000 men for one year are lost annually because the illumination provided is not adequate for the safety of the workers. That this condition should exist year after year is all the more reprehensible because of the fact that the remedy is so easily applied and has beneficial results in many ways other than in the element of safety involved. Accidents caused by carelessness, inattention or ignorance can be eliminated only by a long-continued, painstaking educational campaign often involving a change in long-established habits. The elimination of accidents due to inadequate or improper lighting is simply a matter of purchasing approved equipment and installing it under competent direction. In fact, it seems proper to include illumination in the list of mechanical safeguards, for the reason that the lamps and reflectors provide the guard—illumination—to point out the hazard, just as effectively as a railing points out the danger of and provides protection against the hazard of a revolving flywheel. The sum involved is insignificant when compared with the accident claims, or the lost profit on the product of the labor, or the value of the product itself.

What Work Could Be Produced in the Time Lost

Anyone who makes an extended survey of the lighting conditions of our industries will inevitably be impressed by the much larger percentage of *improper* installations when compared with the *inadequate* installations. This is due primarily to the praiseworthy but none the less ill-advised attempts to better the plant illumination on the basis solely of providing a greater candle-power output. The questions of distribution, diffusion and absence of glare are either not fully appreciated or are entirely unknown and therefore do not receive proper consideration. Now, if the persistent efforts of several years have not wholly succeeded in educating the factory managements in the fundamentals of good illumination, is it not absurd to expect intelligent application of hurriedly promulgated rules for light curtailment? This in itself should be a sufficient argument against any such action, and it is rather gratifying to learn that there will be no general request for diminishing industrial lighting.

The saving in coal by curtailment of industrial lighting would be negligible when compared with the ultimate economic loss. If, for example, the full year's labor of the 108,000 men that is lost annually due to poor illumination could be saved and applied to coal mining, 130,000,000 more tons of coal could be produced. To provide ample illumination for the safety of all these workers, ten hours a day for a full year, would require less than 10,000 tons of coal. We may convert this fact into a more detailed and concrete form by saying that a 25-watt lamp burning ten hours a day will provide adequate illumination on a stairway for one year by the use of one-eighth of a ton of coal. By dispensing with the lamp one-eighth of a ton of coal will be saved, but if during the year one accident occurs involving the loss of only one day's time the economic loss from a coal-producing standpoint would be sufficient to operate the lamp thirty-two years.

This brings us up to the point of considering the effect of diminished lighting at places where such reduction is almost invariably found. Stairways, elevated gangways, passageways and storage spaces are generally inadequately lighted, and are the first to suffer from a policy of light curtailment. The hazards associated with these poorly lighted sections of our industrial plants have been portrayed many times. Confirmation of these hazards has been given

by the report of the British Government survey of industrial accidents, showing that 40 per cent more men are injured from falling and stumbling in the winter months than in the summer months. This is exclusive of street slipping accidents. The physical condition of the stairways and passageways is the same for both periods, the sole difference being in the illumination.

A Reason for Carelessness

Many accidents occur in storage places due to inadequate illumination, but this fact is not often brought out in the reports. Raw material and finished product are often piled in uneven tiers, and these fall over at inopportune moments. Carelessness is very often the contributing cause, but in many cases a conscientious worker will pile material unevenly simply because the illumination is not sufficient to show him that the tier is out of alignment. Similarly, in storing tools or small parts on shelves some are placed too near the edge and fall on workmen. A case in point is that of a young man who was storing small diameter steel rods. Unnoticed by him, one of the rods protruded a foot or more beyond the edge of the shelf, and in passing this point later on he received a jagged cut along the side of his head. There was a small-sized drop lamp in the central aisle, but none in the side aisle where the accident occurred.

Even the supposedly well-lighted working spaces in some shops are not immune from accidents of this nature. A certain work bench was well illuminated by local lights with proper reflectors, but the bench cast a shadow on the floor while the general illumination was not sufficient to offset the shadow. There followed a sequence of accidents due to the toppling over of partly finished work piled in the shadow. With a higher intensity of general illumination, accidents of this type were largely eliminated. Passageways that are traversed infrequently hardly justify the continual use of an illuminant, unless there is exposure to moving machinery or other hazards. Irrespective of the danger element, all passageways should have lighting units so installed that they can be turned on and off at either end. The lack of such a provision was partly the cause of an accident to a carpenter who had been called in to make some repairs in a chemical establishment. A cup had been placed to catch the drip from a slight nitric acid leak until repairs could be effected. The carpenter, assuming that the cup was placed to catch oil drip, poured some of the acid on his saw and then rubbed it with his hand. Before neutralizing agents could be applied the palm of his hand was badly burned. It is evident that if proper illumination had been provided the carpenter would have noted that neither the color nor the consistency of the acid corresponded to that of an oil that might appropriately be applied to a saw.

A method is open to plant managers by which, at the same time, coal will be saved, better illumination provided and accident hazards reduced. It consists in the universal use of reflectors. Every plant manager (as part of his lighting policy) should adopt the principle of a proper reflector for every lamp. In the field of general illumination the use of unshaded lamps, in connection with naturally dark walls and ceilings, or with white walls and ceilings that have become dirty, is not only wasteful and inefficient, but also increases the accident hazard from bright light sources. Proper reflectors would bring this wasted light under control; and at the same time reduce the accident hazard. In a limited number of cases smaller lamps could be substituted and still ample illumination would be provided; but for the most part reflectors should be used with the lamps now installed to bring about a much-needed improvement.

Importance of Proper Reflectors

In the field of local lighting there is much more room for saving and improvement. There are thousands of 120-watt carbon lamps, and many more thousands of 60-watt carbon lamps, used for local lighting about machines. It is the exception rather than the rule to find these lamps equipped with reflectors. Wire guards are more popular. For purposes of illumination a 15-watt or 25-watt tungsten-filament lamp with proper reflector would prove adequate. The question of serviceableness or of breakage of this lamp over the carbon lamp is dependent on local conditions. The recent agreement between lamp manufacturers and the Fuel Administration insures a reduction in the use of carbon lamps. In enforcing this policy lamp users should be warned against employing tungsten-filament lamps without reflectors. Exposure to the high intrinsic brilliancy of the tungsten filament involves a greater degree of vision impairment than with the carbon lamp. Wire guards will not serve; for although they protect the lamp from breakage to a certain extent, they afford no protection to the eye. The lamp can be replaced for 25 cents; but the eye—vision—infinitely more valuable, cannot be replaced at any price.

During a recent inspection we noticed a workman at a stamping press who persistently stood at one side of his machine. In answer to our inquiries the workman stated that he could not see unless he moved to the side and closer to the lamp; and he also informed us that he was going to get a "big tungsten lamp." He was working on large tinned sheets, and while standing in front of his machine a dazzling reflection was directed toward his eyes. A simple adjustment of his local light changed the angle of incident and reflected rays, and thus removed the trouble.

This incident is more or less typical. There is so much unintelligent use of light in the form of unshaded or improperly placed lamps that we are fast approaching the state of being a nation of eyeglass wearers. An important remedial step will be taken when we wholeheartedly get behind the movement of "a propr reflector for every lamp."

Two Pennsylvania Companies File Notice of Increase

The Hummelstown Gas & Fuel Company, operating in Hummelstown, Hershey and vicinity, and the Palmyra Gas & Fuel Company, operating in Eastern Dauphin and Western Lebanon Counties, Pa., have filed notice of increase in rates and added a maintenance charge of 50 cents per meter per month, together with a penalty of 10 per cent if bills are not paid by the tenth of the month.

Urges Use of Pilots with Mantle Lamps as Fuel Conservation Measure

Committee on War Service of Illuminating Engineering Society Prepares Guide for Public to Enable It to Conserve on Lighting Without Jeopardizing Safety, Vision, Comfort, Convenience or Economy

Every citizen can assist the Fuel Administration in its efforts to conserve the coal which must be saved if the war ability of the nation is not to be impaired. Principally this may be done by adopting good practice in house heating. To a lesser but important extent it may be done through careful economies in lighting, according to a paper submitted to the Illuminating Engineering Society at its annual convention by its committee on war service.

It is the patriotic duty of each citizen to see to it that no fuel is wasted in his service. The technical guidance offered should make it possible for each to adopt lighting practice which will conserve fuel without impairing public welfare or diminishing useful accomplishment.

The following simple rules lead to the elimination of waste in lighting, both by limiting the use of artificial light to the minimum necessary number of hours per day, and by promoting the most efficient use of artificial light during those hours.

Elimination of Waste in Lighting

Do not light lamps when sufficient daylight can be had.

Extinguish lamps when leaving a room unoccupied even for a few minutes.

Use pilot flames on gas lamps. They facilitate relighting and leave no excuse for failing to extinguish lamps when their light is not needed.

Do not use lamps which contribute merely to decoration.

Do not use more lamps or larger lamps than necessary.

Do not use all the lamps when part of them will suffice.

Use single large high efficient lamps rather than a number of small lamps.

In halls, bathrooms, etc., turn down gas lamps when full light is not needed. Use electric turn-down lamps or turn-down devices.

Do not use electric lamps of the carbon filament type where the more efficient tungsten filament lamps can be employed.

Do not use open-flame gas burners where the more efficient mantle burner lamps can be employed.

Do not use blackened electric lamps or broken mantles or discolored chimneys. New lamps are more efficient.

Do not use indirect or semi-indirect lighting fixtures in conjunction with dark ceilings which absorb a large part of the light.

Use light-colored reflecting surfaces (ceiling, walls, etc.) wherever practicable. These reflect much of the light and make it possible to employ fewer or smaller lamps.

Clean lamps, shades, globes, windows, etc., thoroughly and often. Dirt absorbs light.

Consult the lighting company for advice as to best lighting practice and latest devices.

Daylight

Use daylight during the war in preference to artificial light wherever and whenever possible.

Raise the shades to let in the daylight instead of lighting lamps.

Arrange window shades to admit maximum daylight when desired. A good arrangement is to have two rollers at the middle of the window, one drawing up and the other down.

Ceilings and upper walls should be light colored and clean. Light-colored surfaces reflect five to ten times as much light as dark surfaces. They conserve both daylight and artificial light.

Refracting or diffusing glass in windows helps to spread the light to distant parts of the room.

Whitened surfaces on building exteriors (especially about courts of high buildings) give more and better daylight in opposite buildings.

Keep windows and skylights clean. Dirty windows may absorb half the daylight.

Dust window screens frequently. Remove them as soon as the insect season is passed. They absorb one-third of the daylight.

Carry out operations requiring strong illumination near windows where plenty of daylight is available.

Arrange machinery, furniture, etc., so that daylight falls on objects to be seen—not on the eyes.

The considerations underlying these rules for economical lighting are as follows:

Fuel Consumed in Artificial Lighting

The total coal output of the country this year is estimated at 700,000,000 tons. About 2½ per cent of this is consumed in the production of artificial light. Electric lighting requires about 12,000,000 tons. The net consumption of coal in gas lighting is smaller (to which, however, a large amount of oil is to be added).

Most artificial light is produced by consuming fuel. Whenever a lamp is extinguished, the consumption of fuel is diminished. A small lamp consumes less fuel than a large lamp. Inefficient lamps require more fuel for a given production of light than do efficient lamps. The gas-mantle lamp will produce five times as much light as the open-flame burner for the same consumption of fuel. An intelligent choice of lamps therefore makes it possible to reduce the consumption of fuel.

Modern lamps are so brilliant that they may injure the eyes if used without protective equipment. Shades and globes conceal them from view, soften and diffuse the light, and, where desired, redirect a considerable part of the light in the direction needed. Shades and globes never increase the total quantity of light, but an efficient reflector will usually increase the light where it is needed. With such a reflector a smaller lamp may suffice, thus saving coal. The advice of the lighting

company should be sought when selecting such equipment.

As a rule, at least one-half, and sometimes practically all, of the light utilized in interiors is received by reflection from walls and ceilings. Good light-tinted paint when fresh rarely reflects more than one-half of the light which falls upon it. The proportion of light reflected from good white lead and oil paint under average conditions diminishes by about 10 per cent a year. The same is true of calcimine and similar coatings. It is apparent, therefore, that there is an opportunity for improving lighting efficiency through the employment of the best finishes for ceilings and upper walls. Painting white ordinary light-tinted surfaces may increase the light reflection by as much as 50 per cent. Therefore, in order to save fuel in lighting, wherever it is practicable, paint ceilings white; employ light tints for the upper parts of walls, and use paint that is non-porous and easily cleaned.

Extravagant Lighting

Extravagance in war-time is unpatriotic. It involves application for selfish purposes of money and energy necessary to winning the war. Lighting in excess of that which is necessary, and lighting for needless display or decoration at such a time is extravagant.

The question of illuminated advertising display is a part of the larger question of general advertising practically all of which involves consumption of fuel. The desirability of curtailing lighting of this character would appear to depend upon the necessity of reducing advertising in general.

Proper lighting display has a place in maintaining the morale of the people no less important than amusements and recreation. Display lighting also has a certain utility in providing necessary illumination. General and needlessly extensive display and inefficient methods of lighting display under present conditions are extravagant. In planning lighting of this character every economy of energy not inconsistent with reasonable effectiveness of the lighting should be sought.

Removing reflectors or shades from lamps in order to "get more light" defeats the object. The raw light from glaring bare lamps is less effective than a smaller quantity of reasonably diffused light not exposed to the eye.

Attempting to economize by reducing the number of lamps or by using smaller lamps *indiscriminately* is unwise. In nearly every case ample illumination is essential to useful accomplishment. The most successful conservation is elimination of waste of light, not reduction of use of light.

Where Not to Save Coal

In war-time human energy and financial resources are to be conserved as well as fuel. Except in the greatest emergency it is unwise to save a little coal at the expense of waste of labor or impairment of health or menace to the safety of the public. Coal saved through the improvement of lighting equipment is clear gain. To diminish lighting standards in industrial plants, offices and other places where accomplishment depends in part upon vision is to reduce accomplishment or output. In such places, therefore, lighting should not be reduced. On the contrary, an increase in the standard of lighting may be the truest economy and in the best interests of the nation. The liberal use of light for protection of important property, munition factories, public works, etc., is likewise in the public interest, and under present circumstances no attempt should be made to save fuel through the reduction of such lighting.

In an acute local fuel situation an absolute lack of fuel may result in largely curtailed activities. If there is no fuel, industry must cease. Such a critical situation obviously demands radical curtailment of lighting beyond anything which is contemplated for general adoption.

In certain localities in the height of winter there may be a power shortage due to abnormally taxed generating capacity. This likewise may necessitate local lighting restrictions of a more extreme character.

In either event, when such a situation occurs, the problem is a local one, the handling of which must be governed by the particular circumstances.

Intelligent application in any lighting installation of the suggestions contained herein will result in appreciable saving in fuel. In some classes of installation certain of these methods of saving have more conspicuous application than others. These more evident applications are described.

Store Lighting

The amount of fuel consumed in store lighting is of sufficient magnitude to make a consideration of possible economies worth while. Waste is usually due to causes rather easy of correction without involving a decrease in the effectiveness of the illumination.

Economies may be effected by:

1. Eliminating excessive illumination.
2. Avoiding the burning of lamps when not actually needed.
3. Saving the light wasted by dirty glassware, dark walls and ceilings and inefficient equipment.

I. Illumination in stores should be only that necessary to enable customers to see comfortably and plainly even where the closest discrimination is required to the end that they may make selections and judgments quickly and satisfactorily and to enable salespeople to perform their duties quickly and easily. The degree of illumination suitable for any particular case may be determined by actual trial through the use of more or fewer lamps or of lamps of greater or lesser power.

II. Lamps should be so controlled that only those actually needed will be in use at any time. In small stores this may be accomplished by controlling each individual lamp or cluster of lamps at the fixture. In larger stores the lamps farthest removed from the windows should be on separate circuits, being switched on first as daylight diminishes, the outer lamps being turned on later as necessary. In all cases the greatest practicable use should be made of daylight.

III. The loss of artificial light due to dirty glassware and dark or dingy ceilings and side walls ranges from 30 to 50 per cent, and may be avoided by renovation at necessary intervals. Ask your lighting company.

Large lamps are usually more efficient than small lamps, and where practicable installation should be altered to consist of the fewest lamps from which uniform illumination may be obtained under the conditions of use. Show windows should be lighted by lamps with efficient reflectors; by the use of these it is often possible to save from 25 to 50 per cent of the energy required

for illumination without impairing the illumination in the window. Under no circumstances should bare lamps be visible from the street, as this renders the eye less sensitive and makes a higher intensity necessary in the interior of the store, thus defeating the purposes for which these economies are urged.

Hotel Lighting

It is suggested that waste in guest rooms be reduced to a minimum by having a notice, probably a card, placed near the door reading:

> U. S. F. A.
> SEAL.
>
> "It is requested by the U. S. Fuel Administration that you kindly turn off the lights when leaving the room, and help save fuel."

All employees of the hotel, especially the housekeepers having charge of the guest rooms, should be cautioned to see that lamps are not left burning when rooms are unoccupied, and that when rooms are being cleaned only necessary lights are turned on. Bell boys should be instructed to turn on only the main or overhead lamp when showing the guest his room.

In dining rooms, where two systems of lighting are in use, such as overhead and table lighting, one of the two should be reduced or eliminated entirely. Where overhead lighting is sufficient, table lamps solely for decorative effects should be done away with.

In public rooms, such as cafes, lobbies, writing rooms, etc., the illumination should be reduced to a point consistent with comfort. All decorative lamps, around mirrors or on brackets, etc., not absolutely essential to produce illumination of a sufficient intensity to avoid feeling of undue depression or gloom should be eliminated.

While it is important as a measure of safety to keep stairways, passageways and halls adequately illuminated, it should be remembered that hall lights burn long hours, and in cases where convenience or safety is not menaced reductions as to number and size of lamps must be made.

Service rooms where lamps are allowed to burn constantly should receive consideration; for example, in large barber shops where only a few chairs are in use, lights over the other chairs should be turned off. In the kitchen only those parts of the room actually being used for preparation of food, washing the dishes and the like should be lighted.

Home Lighting

What can be done in the home to conserve fuel? To answer this question let us ask what things in the home are done by means of fuel. Well, heating, cooking and lighting are mainly done by its use; and either directly or indirectly this fuel is mainly coal. So that to conserve fuel in either of these three uses there are two methods to be considered: (1) To make sure of the efficiency of the appliance used, and (2) to limit the time of its use to a minimum.

It may not be generally known that the percentage of fuel used in the homes of Americans for these three purposes is about as follows:

For heating (house and water)	87 per cent
For cooking	11 per cent
For lighting	2 per cent
	100 per cent

Our specific purpose here is to consider the conserving of fuel in home *lighting*.

Home lighting is by means of *two kinds* of *light—natural* or daylight, and *artificial* light. To properly use the former is to aid in conserving the latter, which requires coal.

At periods near dawn and near dusk, and during the heavily clouded days we supplement daylight by artificial light, and many times we do this unnecessarily because we do not make maximum use of the daylight at hand.

Daylight

(A) Keep window panes cleaned; as much as half the light may be absorbed by thick films of dust.

(B) Keep insect screens dusted; when repainting use light-colored paint instead of dark, and do not paint the mesh closed; or else use galvanized wire which is light in color and durable. Also, remove the screens as soon as the need for them has passed. Many screens stop one-third the light.

(C) Housewives will be reluctant to give up, even to a degree, their use of lace curtains; but some minutes of artificial lighting may each day be saved by a judicious use of these during very bright periods only.

It cannot be said, in general, that our homes are *overlighted*, but as first stated above it is true that many of them use light inefficiently, and many of them are lighted *overtime*. It is desirable, therefore, to correct both of these wastes, and to be watchful against their recurrence. To this end, may we not get this habit: When we look at a lighted lamp let us consider the rays streaming from it as streams of coal made incandescent, and remember *so long as the light flows, the coal flows!*

If it seems difficult to get every member of the family inculcated with the habit of light saving, then much may be accomplished by appointing one of the younger members a light monitor, charged with the duty of seeing that no extra or wasteful light is used. He will probably enjoy the duty and responsibility.

Recommendations for improving the efficiency of the lighting will be given in later paragraphs.

Having our equipment efficient, and desiring to further economize in the use of artificial light, *let us not so much strive for a less lighted room as for less rooms lighted*. Can we not work toward the old idea of the common family lamp, having it modernly equipped and supplying adequate light for all surrounding it?

Recommendations

1. *Turn Off All Lamps Not in Use.*
   Even if you are coming back in a few minutes, you can turn it on again. Pilot burners or wall switches will be found a great incentive to this practice where lamps are in intermittent use.
2. *Clean Lamps Regularly* (not merely *occasionally*).
   Dirty shades and reflectors may reduce your light one-half. It is proved economy to replace dim electric lamps or broken gas mantles with new ones.

3. *Keep Lamps Properly Shaded.*
   Lamps having proper reflectors will give best service. Unshaded lamps cause eye-strain. Poorly designed shades waste light. Consult your lighting company.
4. *Use Only Modern Efficient Lamps.*
   Replace open-flame burners with mantle lamps. Replace carbon electric with tungsten lamps.
5. *Regulate Light for Proper Requirement.*
   Use turn-down lamps for hallways, kitchens, bathrooms, etc., where night lights are required..
6. *Avoid the Use of Lamps for Decorative Purposes Only.*
   This is a form of extravagance unsuited to war times.
7. *Do Not Use Large Size Lamps in Small Size Reflectors.*
   This results in exposed lamps and glare.
8. *Do Not Use Indirect or Semi-indirect Units with Dark Ceilings.*
   Such ceilings absorb too much light, instead of returning it downward in useful directions.
9. *Again—Do Not Use Artificial Light Where Natural Light May Be Used.*

Lighting Economies in Offices and School Rooms

Very large economies in the operation of lighting systems in offices and schools may be effected by observing all of the precautions listed, and this without reducing the general illumination, which is seldom of an intensity higher than that required for the conservation of vision

Operate the lighting units for a given area only when such area is in use. They should not be turned on during any part of the day when the natural lighting will suffice. Place the responsibility for such careful operation on designated individuals.

Parts of the room remote from the windows may require artificial lighting when natural light is sufficient near the windows. Connect the switches, if possible, so that the light sources may be turned on in rows parallel with the window, and the artificial lighting thus used in the several sections only as is necessary.

Often the greatest waste occurs through the lighting of an unnecessarily large number of rooms during the hours of cleaning. Every building superintendent and janitor should insist that lamps be lighted in a given area only when the cleaners are actively engaged there, and that the minimum number be turned on which will permit the work to be done properly.

Cards or signs should be displayed prominently in the various rooms requesting tenants to turn on only such lamps as are necessary to their work, and urging that all lamps be extinguished when daylight will suffice and when the tenant leaves his office.

Use bowl-frosted lamps with open reflectors and be sure that the reflectors are deep enough to protect the eye from the glare of the filament or mantle. Larger reflecting fixtures with glass diffusing bowls suspended below the lamps further soften the shadows and reduce the demand for local desk lighting. Indirect and semi-indirect fixtures produce the best conditions for vision in school rooms and offices.

Clusters of lamps under flat shades produce glare and distribute light ineffectively. The larger lamps are the more efficient. Therefore a lower wattage will suffice in a single large lamp with deeper reflecting and diffusing accessory.

Windows should be cleaned at frequent intervals to allow the maximum use of daylight and limit the use of artificial lighting.

Paint the light wells white. This may reduce the period of artificial lighting by several hours each day, and improve the daylighting at all times.

Where windows of offices are screened, the screens should be removed just as soon as the necessity for their use has passed. They absorb a high percentage of the daylight and require artificial lighting to be turned on for considerably longer periods.

Dust accumulating on school and office fixtures frequently reduces the intensity by 25 to 50 per cent. Clean the units regularly and at short intervals to insure maximum output for the fuel consumed.

White ceilings and, to a lesser extent, light colored walls add greatly to the efficiency of any office or school lighting system. The added diffusion of light is also particularly valuable here. It is necessary that ceilings, especially, should be refinished whenever they become darkened. With indirect or semi-indirect lighting the refinishing of the ceiling and cleaning of the lighting units will frequently increase the intensity 50 to 100 per cent, permitting a reduction in wattage to the next lower size of lamp.

In offices and school rooms the requirements of vision are exacting. The occupants must view fine detail and work in one position for long periods. The light from a lamp, therefore, enters the eye constantly from one direction and will prove annoying and harmful if too bright. Reflections from polished surfaces and sharp shadows also interfere with vision. If the general illumination is from amply diffused sources of proper wattage, all individual desk lamps may be dispensed with.

Economies in Fuel for Industrial Lighting

In almost every plant there is waste in the use of light, the elimination of which can be accomplished without retarding production, impairing the vision or menacing the safety of the employees. The principal sources of waste are the following:

Replace carbon electric lamps by the modern efficient tungsten-filament lamps. Substitute mantle burners for open-flame gas jets. These substitutions will result in a saving of three-fourths of the fuel used for a given candle-power.

Where clusters of lamps are employed under shades replace them by a single larger lamp with a suitable reflector. The larger electric lamps are the more efficient. A lower wattage may be used in a single unit than with a cluster.

Flat reflectors allow much of the light to escape to the walls instead of directing it to the work. They also leave the bright light source exposed to view and the glare interferes with vision, causing a demand for still higher intensities. Use reflectors of the dome or bowl shapes for greatest economy. Except where lamps are mounted in high bay areas use bowl-frosted lamps to reduce glare reflected from the work and to soften shadows.

Space lamps close enough to give uniform lighting and with reference to the work, so as to avoid bad

shadows. This permits the use of a minimum wattage in the general lighting and makes it possible to remove most drop lamps or local lighting. Drop lamps within control of the workmen are frequently burned by him throughout the day when no necessity exists.

Keep lamps and reflectors free from dust by a regular schedule of cleaning at short intervals. In many factories dirty reflectors absorb half of the light produced by the lamps.

Have windows washed frequently. This will greatly improve the natural lighting and permit the use of daylight alone for more hours per day.

Keep ceilings and upper walls well painted in white. When dark or dirty they will absorb so much light that more artificial light must be furnished.

Wasteful Burning of Lamps

So far as possible do all lighting from a general overhead system out of the control of individual workmen. Make some individual in each department responsible for seeing to it that lamps are lighted only in such areas and for such periods as necessary.

Areas at a distance from windows often require artificial light when natural lighting is sufficient near the windows. Swtiching arrangements should be such as to make this possible.

Table I

	Foot-Candles at the Work — Ordinary Practice	Minimum
(a) Roadways and yard thoroughfares	0.05- 0.25	0.02
(b) Storage spaces	0.50- 1.00	0.25
(c) Stairways, passageways, aisles	0.75- 2.00	0.25
(d) Rough manufacturing such as rough machining, rough assembling, rough bench work	2.00- 4.00	1.25
(e) Rough manufacturing involving closer discrimination of detail	3.00- 6.00	2.00
(f) Fine manufacturing such as fine lathe work, pattern and tool making, light colored textiles	4.00- 8.00	3.00
(g) Special cases of fine work such as watch making, engraving, drafting, dark colored textiles	10.00-15.00	5.00
(h) Office work such as accounting, typewriting, etc.	4.00- 8.00	3.00

Rather than Be Deprived of Gas Ada Permits Increase

Faced by the question of either paying 50 cents a thousand or being without gas this winter, the Ada council voted to give the Medina (Ohio) Gas & Fuel Company the right to raise the price of fuel from 33 to 50 cents. This city was the last one along the gas company's lines to permit the increase.

How the Gas Companies Are Helping the Nation

Everett C. Kramer, of 1332 L Street Southeast, Washington, D. C., was severely wounded at the battle front in France. Mr. Kramer is thirty-one years old. He was for some years in the employ of the Washington Gas Light Company.

The Binghamton Light, Heat & Power Company employees have subscribed $6,500 of the Fourth Liberty Loan Bonds, this being about double the amount subscribed for the first loan. The Company is a 100 per cent one, each employee having purchased at least one $50 bond. S. W. Murray, manager of the commercial department is taking a very active part in the Liberty Loan campaign.

The Sandusky Gas & Electric Company was well represented in the Fourth Liberty Loan campaign. Major C. B. Wilcox, chairman of the board of directors, was county chairman of publicity and E. A. Bechstein, general manager, was delegated to raise funds for advertising the loan, and was also captain of his precinct team. William Ryan, superintendent of the gas department, was lieutenant of his precinct team. The Sandusky Gas & Electric Company's office was among the first to display the 100 per cent flag.

Private William E. Dodge, a former employee of the Des Moines Gas Company, Des Moines, Iowa, now in active service in France with the 54th Battalion, Canadian Infantry, writes the Journal as follows:

"France is surely a lovely place, but, of course, not where I am for the present time. The places that are not affected by shell fire are about the loveliest spots I have ever come across.

"I guess you have read in the papers about the Canucks. Why, we surely did have a warm old time. Thank God, I came through it all without even getting a scratch. But we surely made old Heinie get back. Yes, and we have not finished with him yet. He is going to go back further, believe me.

"This is surely a great experience to a young man. It makes him realize what life is in civil life. I am sure, too, it brings all of us closer together in all ways. I think there will be a great difference between man and man after this war, especially the boys at the front. Of course we can see it more than the people can in civil life. I have lost quite a number of my pals in this last push. Now I have to find some more. That is how it goes all the time. While coming out of the line it is a hard, trying life, but we go through it all with good courage and a good grin on our faces, and that is what is beating old Heinie, too—the courage of the men.

"It surely will be a great day for us when this is all over, as it is the same old thing all the time—shell for day after day for us. We get so used to it we don't take notice of it now. Wishing you all good luck, I remain, Yours truly,

"Private William E. Dodge."

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Play Straight

Times have been when certain forms of subterfuge were condoned—even applauded. But we have too recently seen it practiced on a colossal scale. The world has become disgusted with it in all its forms and degrees. The totally frank and open individual we regarded as a sort of an amusing simpleton. To-day he is the man of the hour—and the future.

Non-harmful trickery and adroitness is often amusing. It seems almost a pity that it must be utterly taboo. But we have learned it is too fraught with possibilities of real mischief. Therefore it must go.

We have noted that the rate increases that have been permitted have almost invariably been granted to those companies which have most unreservedly kept nothing up their sleeves. The Cambridge, Mass., company's practice in this regard served a good model. Here, as we read it, there was almost an invitation to the general public to drop in and look over the books.

Frankness and plain honesty is proving effective. It must be, therefore, the *correct* business practice.

A Commendable Indifference to the Bulk of the Load

It has been estimated that possibly 60 per cent of all gas sold is sold for illumination. Nevertheless George B. Cortelyou, speaking through W. Greeley Hoyt for the whole gas industry, at the annual meeting of the society, coolly, almost indifferently, offered to let this go into the discard to any limit in the interests of fuel conservation. Thus answering to the call to sacrifice in a great cause, the gas industry has offered to relinquish without effort a business which no element of hopelessness or discouragement could induce it to give up since the advent of the electric light, and previously, if in that relinquishment it can contribute in some small part to the averting of suffering through shortage of fuel and the winning of the war.

This is a healthy symptom—an assurance that there will be a gas industry on relatively the same lines as at present twenty-five years from now, and that it will be an industry that no one will be ashamed to be connected with.

In every line of human endeavor instances of individual selfishness will crop out. Ordinarily its display merely engenders a feeling of disgust. To-day it breeds absolute detestation.

We must, of course, have earnings to exist. A fair rate of return is essential to the health of our companies. And the management of a public utility that will passively permit the power of his company to render adequate service to become weakened is traitorous, consciously or unconsciously, not only to his company, but to the nation itself.

But aside from the attention we must give them as

essentials to keeping going we should pay small heed to earnings. Our job will not end when the war ends. It will become even more exacting. We must keep our works up and ready for all demands made upon them, but beyond that let us adjust our perspective to nothing.

If this branch of our business, or that, must go, let it go. We can get them all back again, and we will have retained the most valuable of all our possessions—reputation.

And We Continue Sending Two Hundred and Fifty Thousand Men a Month

The Hun has learned something. Other nations had already sensed it. The mode of ending of past wars is not going to prove a precedent in the ending of this war. The Hun thought it would—thought that, having committed his crime and failing to achieve its purpose, all he had to do was to throw up his hands and call it quits, and thus escape punishment.

He figured the peoples of the world were wearied of warfare. They were, indeed, even before this war started. Among civilized people militarism was no longer glorified. People had learned, in viewing battles, to ignore the shining knight in armor and consider the miserable, trudging, footsore man at arms. And it is because the peoples of the world are so wearied of war, so horribly nauseated at all it implies, that the Hun is condemned to pay the full price of his iniquities.

There are no wheels within wheels that will influence the termination of this war, no dynasties that must be protected even at the expense of compromising with sin. The sentiment of our European allies is for the personal accountability of the individuals who brought on the war and incited its outrages. The sentiment of the American people is sympathetic to this view, and our Government must inevitably accept it.

This done and the German Kaiser placed on the same plane as was Police Lieutenant Becker in New York some years ago, and we will have done more to prevent future wars than could ever be accomplished by any League of Nations.

Every movement requires a leader. If the leader who, in the future, contemplates launching his nation into warfare sees back in his mind the spectre of the German Kaiser on his gibbet he will look deeply into the facts to make certain that he is not rendering himself liable to conviction in the crime of wanton murder. This being the attitude, there is little likelihood of many wars, especially wars of aggression. When statesmen are punished as murderers when wars they launch amount to murder, then indeed will the world be approaching the perfect state.

The Hun has asked for peace without punishment. It has been denied, and we continue sending two hundred and fifty thousand men a month to France. How real must the ghosts of peoples of the ravaged cities, of the passengers of unarmed ships, of the wide-eyed little children, of the ravaged women appear to the Hun at this moment. The wages of sin are not a Sunday school bogey. They are and always have been a terribly concrete fact.

The Friends Who Have Gone

There is a desire on the part of all of us to probe into the mind workings of the soldier in action. It is not the emotions and thoughts he expresses in his letters we want acquaintance with. It is the thoughts he never reveals.

The soldier in action is human like all of us. It is in many cases a mere accident of fate that he is there and we are here. That is the basis of our desire to know what emotions he experiences; what thoughts run through his head in the midst of his dangerous task. We want to gauge ourselves to know how we would feel under similar circumstances. And that is the means by which, working our imaginations slightly, we can probe into the soldier's secret thoughts—by remembering he is human and studying the effects of various happenings and incidents upon our own emotional structure.

The soldier lives in close contact and comradeship with some tens or hundreds of other men; knows them intimately by name and characteristics. All of these are engaged in the same task that he is. Regularly some fall out—dead.

We know the effect of death upon us in civil life. We do not have to contemplate it in our own families or among our intimates to sense the reaction upon the soldier. Take the man in the office next door, for instance.

We occasionally spoke to him. A month ago we had some business transaction with him. He was well on in years, but not much beyond his prime. He was apparently sound in body and mind. There was nothing about him to suggest the immanence of death. Yet yesterday we learned he died of a normal cause.

How well we remember the reaction upon our own emotions. We were abruptly brought face to face with the uncertainty of human life. Though the man was practically a stranger, we were depressed.

The soldier goes through this experience almost daily. He makes friends but to lose them.

Conceive, then, how prone he must be to continuous depression. It is more even than mere absence from home and those he knows and in whom are reposed his deepest affections that he has to contend with; more than the strangeness and rigors of his new mode of life.

Imagine, then, how he would value a letter or other form of news from home, from you, even though you are a comparative stranger. We, you and I, have

greater obligations to the soldier than merely buying Liberty Bonds and contributing to the Red Cross, Y. M. C. A., Salvation Army and Knights of Columbus funds. We owe them sympathy, understanding and an active effort to drive away loneliness and tendency to depression.

Publications

Safe Practices—Goggles

Folder; 8 pages; 8½ x 11 in.; illustrated. Issued by National Safety Council, Chicago.

A presentation in loose-leaf form of a discussion relating to accident prevention through use of goggles and the kind, and how they should be used.

Petroleum: a Resource Interpretation

Flexible-backed volume; 9½ x 6¼ in.; 76 pages, illustrated. Authors, Chester G. Gilbert and Joseph E. Pague. Issued by the Division of Mineral Technology, U. S. National Museum, Washington, D. C.

One of a series of papers on mineral resources, the object of which is well explained in the volume itself:

"Mineral resources are coming more and more into prominence as the basis upon which modern advance is built. Their adequate development is a matter of the first importance, and public opinion will be called upon in increasing measure to shape the course of advance in this fundamental field. As the general subject is not one of popular experience, this series of papers is under preparation for the purpose of interpreting in non-technical language the significant aspects of each resource of mineral origin, in anticipation of a growing demand for concise summations of technical knowledge in a form adapted to current use.

"The sources of energy underlie the employment of all raw material, and this paper on petroleum, together with those on coal and power of this series, aim to present a constructive analysis of the fuel situation in the United States."

A Convenient Multiple-Unit Calorimeter Installation

Booklet: 9 x 6 in.; 48 pages, illustrated. Authors, J. D. Davis and E. L. Wallace, of the U. S. Bureau of Mines. Issued by the Bureau of Mines, Washington, D. C.

Relates to calorimeter for determining the value of coal bought on a hest-unit basis. Contents include: Essential features of a calorimeter; apparatus used by the Bureau of Mines—the bomb, calorimeter can, stirrer, lead wires, constant temperature bath, temperature control of the bath, device for handling water for the calorimeter, temperature control, measurement of water, temperature measuring device, the bridge, batteries for bridges; the galvanometer; distributor switch; calibration of the bridge; thermometer calibration; determination of the water value of the calorimeter; performance of the calorimeter

Cambridge Company's Reputation for Fair Dealing Stands It in Good Stead in Protest Over Rate Raise

There has apparently been a protest in the recent rate increase of the Cambridge, Mass., company. But the consumers, evidently, are inclined to take the company's word for the necessity of the increase, and are worried more about the expense the "expert" is going to occasion them than they are about the increased sums the gas company will call upon them to pay. The following is from the *Cambridge Sentinel* for Oct. 12:

"There is much too much postponing of the public hearing before the State gas and electric light commission by the city's expert on the matter of protest against the recent raise in the price of gas by the Cambridge Gas Light Company. Forty days have been consumed in the attempt to show that this company has not been justified by war-time conditions as to cost of production in raising its price to the pitch it did. The company presented its case, showed figures to justify its action; the city hired its expert for about $40 per day and incidental expenses, and there is no reason why, if there is anything wrong in the Cambridge case, a real expert could not have found it out by this time. The State commission is patiently waiting to be shown, the expert's delay is piling up the expense for the city with the ultimate result in all probability that the Cambridge figures will be sustained. It stands to reason that men like A. L. Barnes and the others, directors and stockholders, most of whom are Cambridge people, would take no risk of losing a cherished place in public opinion by deliberately juggling expenses to mulct the gas cosumers of Cambridge. If such were the case, why should a real expert take up so much salaried time to ferret it out? Why not assume that a corporation which has long enjoyed a reputation for fair dealing, as a public service corporation, has ever showed a surprising moderation as to profits, is honest in its position as to production cost. Every other business has soared up into the zenith in this respect, and why not gas production? The city expert may be a paragon in his vocation, but they pay for their keep, and human nature being what it is, where is the expert that has any sense of the value of time? The people of Cambridge are satisfied to pay for a temporary increase in the price of gas because there is no sound reason why gas prices should not keep upward company with every other commodity, a situation brought on by the Kaiser and his Potsdam crew. If the company has boosted the price more than cost conditions justify, show it, but don't take so long about it—the public treasury of Cambridge is not the Federal mint.

Annual Meeting of Empire State Gas and Electric Association Postponed

It has been decided to postpone the annual meeting of the Empire State Gas & Electric Company until Oct. 24, in order not to conflict with the Liberty Loan campaign.

The meeting will be called to order at 10.30 a. m. in Room No. 2 of the United Engineering Societies Building, 29 West Thirty-ninth Street, New York City.

East Ohio Company Cannot Make Extensions to Lakewood Due to Scarcity of Labor

The East Ohio Gas Company has informed Mayor B. M. Cook, of Lakewood, Ohio, that it is impossible to make extensions in Lakewood because of the scarcity of gas pipe. The Mayor has received complaints from several citizens who stated their requests for gas service were ignored.

Utilities Commission Claims It Cannot Compel Logan Company to Furnish Sandusky with Gas

The State utilities commission cannot compel the Logan Natural Gas & Fuel Company, of Sandusky, Ohio, to furnish gas. It so advises the city commission in a recent communication.

The Logan company intends to withdraw from Sandusky territory upon the expiration of its present contract, July 9, 1919.

Byllesby Communities Go Over Top in Fourth Liberty Loan

One of the first communities to oversubscribe its quota in the Fourth Liberty Loan was North Bend, Ore. This it did in the first day of the drive. Other Byllesby communities completing their quotas early include Ottumwa, Iowa; Sioux Falls, S. D.; Kalispell, Mont., and Eureka, Cal.

New Bedford Company's Capital Stock Increased and Paid In

The New Bedford (Mass.) Gas & Electric Light Company has notified the commissioner of corporations that the capital stock of the company has been increased by $477,000, and that the same has all been paid in.

Illuminating Engineering Society Holds Inspiring Convention

Though Characteristic of Small Attendance Discussion Is Instructive and Pertinent to the Times—Remarkable Achievements of This Society in Aiding the Government in War

One was first struck at the twelfth annual convention of the Illuminating Engineering Society, held in New York City Oct. 10, with the unusually small attendance. This, however, did not indicate a slump in interest in the work of this society or an indifference to the subjects which came up for discussion. In fact, the writer cannot remember any convention held hitherto by this society which served so useful a purpose or from which those in attendance received greater inspiration or more valuable suggestion.

The subjects of the papers and the topics of discussion were almost exclusively confined to matters pertaining to the war. A noteworthy feature of the afternoon session was the open-handed surrender of all lighting interests, gas and electric lighting, to the fuel needs of the nation.

The attitude of the lighting industries was best revealed by the statements of George B. Cortelyou, as president of the American Gas Association, through W. Greeley Hoyt, that the gas industry stood behind all efforts of the Fuel Administration to curtail lighting and thus save fuel 100 per cent. Without reservation the gas industry thus expressed its willingness to lose every cubic foot of this class of business on its lines without protest if the fuel needs of the nation so require.

Nor was the electric industry less emphatic in its renunciation of all personal interests. Through the National Electric Light Association this great industry took the same attitude as the gas industry, though its lighting business may be, perhaps, a bigger proportion of its whole business. Thus, as in the case of the gas industry, the electric industry did not hold back, did not criticize any policy or action of the Fuel Administration, but frankly laid its lighting load on the sacrificial altar.

An interesting suggestion on saving in artificial illumination in stores was made by L. B. Marks. Mr. Marks pointed out that in a rather extensive investigation of New York City stores it was found that natural light obstructions offered through displays in windows ran as high as almost 100 per cent. He suggested the great saving that lay in influencing storekeepers to so arrange their windows that natural light could enter with a minimum of inconvenience.

Mr. Wakefield, of the Society of Electrical Development, brought out the interesting information that some years ago there were ardent advocates of the policy of not permitting any part of the interior of the store to be seen through the display window, as a means of eliminating distraction of the onlooker's mind from the contents of the windows.

A feature that did not pertain to gas particularly, but which proved interesting to all in attendance, was the information given on lighting of cantonments by Bassett Jones. Gas men remember vividly the difficulties of getting gas into the cantonments for cooking. These being a new feature in our military life, there was no precedent to go by. It had been the practice in military encampments to use a certain style of cooking range, using wood or coal. So far as the military regulations went this was the only kind of a range in existence. The gas man approached cantonment officials with the proposition to install gas ranges, then found them-

selves up against a stone wall in the fact that there was no leeway in the red tape regulations to permit them to purchase such appliances, and the means through which gas was gotten into some cantonments in the earlier days was that of converting the standard army range to gas at the expense of the gas companies.

Mr. Jones' paper rather suggested a similar frame of mind in regard to the cantonments. Any inelastic regulations as to how they should be lighted resulted in a lighting system that consumed plenty of power and was injurious to many eyes, but did not really illuminate.

The amount of work done by the Illuminating Engineering Society to assist the Government was somewhat of a revelation to the majority of those present.

The paper on "War-time Lighting Economies," by the committee on war service, through C. O. Bond, was very heartily received and very favorably commented upon. It was considered that this paper brought out practically all there was to be brought out on this subject, and many recommended its widespread circulation. In this paper one was impressed most by the fact that it is the simple, the obvious economies wherein lie the greatest possibility of service.

Two Subsidiaries of Scranton Gas & Water Company Increase Rates

Increases in the gas and water rates were announced in a recent advertisement by the Scranton (Pa.) Gas & Water Company. The changes will affect two companies, subsidiaries of the Scranton Gas & Water Company, the Hyde Park Gas Company and Capouse Gas Company.

Explaining the increase in rates which become effective Nov. 1, President Worthington Scranton makes the following statement:

"The Scranton Gas & Water Company and its subsidiaries have been forced by the continued advance in all operating costs and in taxes to increase some few of their rates.

"Compared with 1916, the year before the United States entered the war, our operating expenses and taxes are this year showing increases amounting to $300,000 per annum. In addition to this we have recently increased wages to meet the standard suggested by the War Labor Board at a cost to us of $50,000 a year, and the increase in taxes and gas oil alone will amount next year to an additional $95,000, so at the very lowest our operating expenses and taxes will show an increase in 1919 over 1916 of $445,000, and probably considerably more than that."

Increase Announced by Connecticut Company

The Connecticut Light & Power Company announced to-day an increase in its various gas rates, and the following statement was issued from the office of the company:

"The constantly increasing costs of operation have been a matter of serious moment to the company for many months, and it has seemed inevitable that sooner or later the company would be compelled to make an advance in its gas rates. With the present unsettled conditions of the country's market for materials, there does not seem to be any let up to the advancing costs of operation, and the company has only increased its gas rates after all other methods of meeting the increased costs of operation have failed."

Saco and Biddeford Rate Increase Effective Nov. 2

The York County Power Company, supplying gas for the cities of Biddeford and Saco, Me., recently filed with the public utilities commission a change in gas rates, which, effective Nov. 2, 1918, increases the rates as follows: First 10,000 cu. ft. per month from $1.60 per 1,000 to $2; for the next 10,000 cu. ft. per month, from $1.50 to $1.90, and for the balance of cubic feet per month, from $1.40 per 1,000 cu. ft. per month to $1.80.

Newtown Company Tells Commission It Cannot Reduce Rates

The public service commission recently held a rehearing on the order which calls upon the Newtown (N. Y.) Gas Company to reduce its rates to consumers.

Through its counsel the company alleged that it could not supply gas at less than 95 cents and submitted lengthy data to prove this contention.

The public service commission some time ago ordered the company to reduce its rates and it is in answer to this order that the company is now being heard.

Commissioner Travis H. Whitney, for the commission, accepted the data submitted by counsel and adjourned the hearing. Further data will be submitted by the company in support of its plea. The company asserts that it now has to pay considerably more for supplies and labor than it did before the war started, and that while the reduction might have been possible in 1914, it is now out of the question.

San Diego Rate Increase Hearing Reset for Oct. 25

The hearing in the application of the San Diego (Cal.) Consolidated Gas & Electric Company for authority to increase gas and electric rates, has been reset, and will be heard before Commissioner Loveland, at San Diego, on Friday, Oct. 25, at 2 o'clock p. m.

Macon Gas Company Seeks Higher Rate

The Macon Gas Company, of Macon, Ga., Oct. 4 filed with the railroad commission a petition asking to be allowed to make an increase of 10 cents per 1,000 cu. ft. in the price of gas. The commission named Oct. 22 as the date for the hearing.

Increased Rate for Boise Authorized by Commission

The public utilities commission handed down an order recently permitting the Boise (Idaho) Gas Light & Electric Company to increase its gas rates 25 cents per 1,000 cu. ft. The increase will be borne by the smaller consumers of gas. The larger consumers will not be seriously affected by the order. It virtually permits the gas company to meet $10,000 of the $17,000 losses claimed by it through operations since the war started in the increased cost of labor and materials.

The rates went into effect under the new order on Oct. 1. Instead of a discount of 10 per cent, a discount of 10 cents per 1,000 will be allowed for the payment of bills on or before the tenth of each month. The increases allowed follow: 550 cu. ft., 10 cents; 600 cu. ft., 15 cents; 700 cu. ft., 17½ cents; 800 cu. ft., 20 cents; 900 cu. ft., 22½ cents; 1,000 cu. ft., 25 cents; 2,000 cu. ft., 50 cents; 3,000 cu. ft., $1; 4,000 cu. ft., $1.05; 5,000 cu. ft., $1.10.

Louisville Company Closes Contract for Additional Gas Supply

The Louisville Gas & Electric Company has made a contract with gas well owners in Floyd County to purchase 5,000,000 ft. of gas daily. A pipe line 25 miles long will be built to connect the Floyd County fields with the main pipe line of the company from the West Virginia fields to Louisville. The gas will be available in Louisville by the middle of January. The price ranges between 10 and 15 cents per 1,000 ft. This new flow is expected to enable the company to meet its franchise requirements of 12,000,000 cu. ft. a day.

Last winter this flow was not maintained at the contract price and suits are now pending against the company for forfeiture of its bond of $50,000 to provide a minimum pressure of 3 oz. at all times, and its bonds of $250,000 for the full performance of its contract. Consumers last winter, who, according to the terms of the franchise, are entitled to deduct a certain percentage from their bills when the pressure is below the standard fixed, deducted $92,000.

Richmond, Ind., Citizens Assured Adequate Gas Supply

Word has just been received in Indianapolis that an agreement has been entered into whereby citizens of Richmond, Ind., apparently will be assured adequate gas service without the constant controversy that has marked the gas situation in that city for a number of years. According to this information the Richmond Light, Heat & Power Company has just entered into an agreement with representatives of the city of Richmond under which artificial gas is to be supplied to customers for six months out of each year at a maximum rate of $1.25 per 1,000 cu. ft. It is presumed that the artificial gas will be furnished in the winter months. At the same time a flat rate of 70 cents per 1,000 cu. ft. for natural gas has been agreed on, and the natural gas will supplement the artificial gas practically entirely during the other six months of the year. The company at Richmond is returning to the manufacture of artificial gas because of the apparent continued shortage of natural gas.

At the beginning of the situation which has resulted in the agreement as to rates, the company held out for a rate of $1.60 per 1,000 cu. ft. for artificial gas. The agreement just made public is a compromise of the whole gas rate situation in Richmond, according to word which has been received from that city.

Some time ago the Public Service Commission of Indiana fixed a rate of 70 cents per 1,000 cu. ft. for natural gas, but this order has been in litigation since it was issued. The company, because of its inability to obtain sufficient supplies of natural gas, had notified the community that it could not guarantee any supply of the natural product because of the shrinkage of the West Virginia supply. According to word which comes from Richmond the agreement now entered into probably will solve the situation there for some time to come.

Taunton Company Offers Cots to Public Safety Committee

The Taunton (Mass.) Gas Light Company, through Treasurer Walter C. Soper, has offered to the public safety committee the use of a quantity of 150 cot beds which it now has at Mansfield, in case they should be needed in meeting any present or future emergency.

Port Huron Company Willing to Have Book Audit Made

B. J. Crahan, manager of the Fort Huron (Mich.) Gas & Electric Company, recently informed the city commission that he had received a telegram from the headquarters of the company in Philadelphia to the effect that the company would pay the expenses of an expert to go to Philadelphia and audit the books of the concern. The expert is to report to the city commission on the validity of the claim of the gas officials for an increase in gas rates.

At a recent meeting of the commission representatives of the company informed the city officials that if the company was to continue in business and furnish gas it would be necessary to secure a $1.25 gas rate as a war measure. After some discussion the city commission decided that the gas company should submit to an audit of its books by an expert and at the company's expense.

Public Service Commission of Indiana Calls a Conference on Gas Standards

In calling the conference on gas standards in Indiana the public service commission, under date of Oct. 3, notified all the gas companies in Indiana, the State Municipal Leagues, representatives of the Indiana Gas Association, all city governments everywhere throughout the State, the Indiana Fuel Administration and prominent gas engineers. The Federal Government also was requested to send a gas expert. The letter of invitation to the conference was as follows:

"Gentlemen: A conference on standards for gas service in Indiana will be held on Tuesday, Oct. 8, 1918, in the rooms of the Public Service Commission of Indiana, 121 State House, Indianapolis. This conference will begin at 10 a. m. You are invited to attend or be represented. There are being invited into this conference representatives of all gas companies of Indiana, of the State Municipal League, of the Indiana Gas Association, of city governments, of the Indiana Fuel Administration and prominent gas engineers. The national Government will be represented by a gas expert from the United States Bureau of Standards at Washington. The conference will be open to all interested.

"Conditions brought about by the war have affected gas making, and Indiana cities are complaining on the matter of service. It is the purpose of this conference to discuss:

"1. The proper B.t.u. content for gas to obtain the best service per unit cost to the consumer.

"2. The allowable deviation from the standard.

"3. Penalty to be applied to the company for failure to maintain the standard within reasonable limits.

"4. Relation betwen B.t.u. content and cost to the company.

"5. Instruments to be owned and used by the company.

"6. Frequency of tests.

"7. Service records to be kept by the company for information of the public and the Public Service Commission of Indiana.

"There will also be discussed in this conference matters of closer relationship between gas companies and the public and this commission, and the obtaining and conserving of gas oil and gas coal supplies.

"It is the desire of the commission

that you find it convenient to be present and assist in evolving standards for gas service, at least for the war period, for the State of Indiana."

Conference Extends Over Two Days

The commission, after a number of conferences which extended over two days, is now awaiting the report of special committees representing all these agencies, from which report the commission will determine its future attitude in Indiana towards gas standards and gas service generally. It is the understanding that the commission, in the light of new information received during its conferences, will rehabilitate the entire program of gas company regulation in Indiana.

War-time increases in cost and war-time difficulties in the obtaining of fuel, labor and other elements entering into the production of gas were discussed at great length at the conferences which the commission held Oct. 8 and 9, and an attitude was apparent on the part of the commission that promises the utmost cooperation on the part of that body with the hard-pressed gas companies of the State.

The action to be taken subsequently to the report of the committees now considering the heat unit standard and the sliding scale of payment plan probably will be so revolutionary, when former gas regulations in Indiana are considered, that the companies will reap much benefit therefrom. Years ago a former commission in Indiana established 600 B.t.u. as the gas service standard in Indiana, and this standard continued in effect since that time. At the conferences the commission has just held it has become apparent that a standard of 600 B.t.u. is so far in excess of reasonable war-time requirements that commission engineers believe the new standard to be set will fall at least to a basis of 550 to 570 B.t.u., with an absolute maximum of 530 B.t.u. It also seems probable, however, that some sort of a penalty clause may be attached to the standard so that companies will not fall below the minimum requirements. It was brought out clearly at the conferences that all grades of gas coal which it is now possible to obtain are so much lower in quality for gas-making purposes that former standards applying to gas service cannot possibly be maintained.

This condition, it was pointed out at the conferences, not only is true of the present, but will be true permanently. Therefore it has become clear the entire gas industry, at least so far as Indiana is concerned, has entirely changed, and one official high in the service of the State said it appeared to him that the chances are that the service standard of 600 B.t.u. has gone forever in that State.

Gas Men Almost Certain of Relief

Gas men who attended the conference seemed well pleased that the Indiana commission has seen fit to lend an open ear to the gas problems of the State, and they felt certain, they said, that relief, at least of a temporary nature, is in sight for the gas companies. Conditions similar to those in Indiana, but applying to practically every State in the Union, were discussed fully at the conferences, and the whole gas "story" showed conclusively that former standards of service cannot be maintained under existing conditions in the country now. After long discussions of the problems involved it was agreed that a special committee should be appointed immediately to go over the entire service situation and recommend to the commission a new B.t.u. standard, which in all probability the commission will adopt to apply generally to gas companies throughout the State wherever the commission has jurisdiction. The Indiana public service law gives the commission jurisdiction to fix gas standards only where municipal authorities have not enacted municipal ordinances specifically regulating gas service, but the present situation seems to indicate that even where gas companies are municipally regulated as to service the new standard that will be developed eventually will be accepted by such municipalities as the reasonable solution of their own war-time gas problems.

Proposed Standard to Be Considered by Special Committee

The special committee to consider the proposed new standard for Indiana will include two representatives of the Public Service Commission of Indiana, both to be engineers; two representatives of the National Bureau of Standards, two representatives of the Indiana Municipal League, which is composed of various municipalities throughout the State affected by the general gas situation, and two representatives of the Indiana Gas Association. This committee probably will have been nominated by the time this article is published, and the commission, under the agreement, is to make the appointments of these men within ten days subsequent to their nomination, and the committee is to go to work within thirty days after its appointment. Another similar committee is to discuss the proposed sliding scale of payment which the commission already has promulgated for certain gas companies in the State. The commission's sliding scale of payment, however, heretofore has been based on the 600 B.t.u. service standard, and with the modification of this standard necessarily the sliding scale of payment plan must likewise be modified in favor of the gas companies. The commission's present sliding scale as promulgated tentatively at the conference in Indianapolis ranged from the allowance of 100 per cent of the standard gas rate charged in a community for the full 600 B.t.u. service supplied customers to an entire elimination of the gas rate when the service supply fell below 400 B.t.u. supplied to customers.

More Than Fifty in Attendance

At the conference in Indianapolis more than fifty gas men, city officials, Government and State officials attended, and following the general conference two special committees were appointed to consider specifically the service standard and the sliding rate scale. These committees functioned for two days in conferences in Indianapolis, but definite results were not forthcoming, and the appointment of the permanent committees on these subjects was agreed upon at the conclusion of the Indianapolis meetings.

The following members of the committees considering the heat standard functioned during the Indianapolis meeting: R. S. McBride, Washington, representative of the Federal Bureau of Standards; S. E. Mulholland, Fort Wayne, vice-president of the Northern Indiana Gas & Electric Company; S. F. Spohn, Goshen, representing the Indiana Municipal League; H. O. Garman, chief engineer of the public service commission; J. D. Forrest, secretary and general manager of the Citizens Gas Company, Indianapolis; J. H.

(*Continued on page* 380)

The Gas Heater vs. the Furnace

By I. R. Merritt

The coal shortage has made people look around for other heating appliances in which connection gas is playing an important part. The gas company should not sit tight and wait for the demand to assert itself. Delays are dangerous in that people are just as apt to use electricity and kerosene and wood substitutes for coal, with the result that the gas company does not reap the extra business that it should.

The St. Paul Gas Light Company went out with the following appeal to their consumers:

COMFORTS

Why sit in front of the furnace in the cellar waiting for the fire to come up when you can sit in the parlor in front of a nice gas heater and be thoroughly warmed up before a coal or a wood fire gets a start?

Save your coal for real cold weather — use gas now — it's cheaper than any other fuel.

Use fuel that can be delivered into your heater.

Those who suffered from the intense cold last winter and who were caught with a shortage of fuel will surely remember that experience. The last argument advanced in the advertisement will not fail to convince them, if the other arguments don't.

Lone Star Company Almost Doubles Income in Six Months

The Lone Star Gas Company, according to the six months' report issued recently, earned almost as much in the half year as in the calendar year 1917 and $215,000 more than in the calendar year 1916. In the six months ended June 30 last the net profits available for dividends were $732,872, equivalent to $14.65 a share on the $5,000,000 capital stock. This compared with $772,630 in the full year 1917 and $517,720 in the full year 1916.

Final profit and loss surplus at the close of the six months was $1,414,184, compared to $881,312 at the beginning of the period. The surplus for the half year after the payment of $200,000 dividends was $532,872.

Pacific Company Seeks Approval of Stock and Bond Issue

The Pacific Gas & Electric Company has made a number of capital expenditures in extending its system and increasing its capacity which are in excess of the amounts previously authorized by the State railroad commission, officials of the company recently stated at the hearing on the company's application to issue $5,000,000 in bonds and $5,000,000 in preferred stock.

The total amount expended on capital investments against which no stock or bonds have been issued is set forth in the application as $3,504,255.

A. F. Hockenbeamer, treasurer of the company, stated on the witness stand that the company purposes to sell 5 per cent general and refunding first mortgage bonds at not less than $85 and the 6 per cent first preferred stock at not less than $82.50. The disposal of both the stock and bonds after securing the commission's approval, he said, depends upon the consent of the capital issues committee of the War Finance Corporation.

The total amount of capital expenditures made by the company in extending its system up to May 31 of the present year is $6,594,000, it was stated, and of this sum $613,000 was made out of the earnings of the company and not from the proceeds of sales of securities.

"Corporate Perjury" Charge Against Peoples Company

Special Counsel Richberg for the city of Chicago in gas matters charged before Judge Torrison here recently that the Peoples Gas Light & Coke Company has committed "corporate perjury" in connection with the city's efforts to have the company held in contempt for charging the increased rates recently authorized by the State public utilities.

Mr. Richberg charged that this was done when two representatives of the company gave different testimony on the same subject before the public utilities commission and during the hearing of the contempt proceedings.

He argued that the utilities commission had overstepped its powers when it increased the rate.

Judge Torrison took the matter under advisement and will render his decision later.

77 Cent Rate in Minneapolis Will Remain Until Data is Compiled on Which to Base New Rate

Data on which to base a new contract between the city of Minneapolis, Minn., and the Minneapolis Gas Light Company will not be available Nov. 1, when the present contractual ordinance expires, Milo R. Maltbie, engineer, retained by the city to assist in framing the new contract, announced recently.

Mr. Maltbie is awaiting the company's inventory of its physical properties, and the company, because of its inability to obtain trained stenographers, will not have the inventory concluded before the ordinance expires.

The delay will result in a continuation of the present 77-cent rate per 1,000 cu. ft. of gas—a rate which the gas company, in the new contract, will attempt to raise materially.

Fire at Pocatello Plant

Shortly after 9 o'clock, Oct. 2, a generator cap blew off at the Short Line gas plant of the Pocatello (Idaho) Gas & Power Company in the north end of the yards, and soon after the explosion the building was a mass of flames. Both departments responded to the alarm and three lines of hose were laid and the strong water pressure soon played havoc with the flames. The city departments with the assistance of the Short Line department did fine work in fighting the flames, as the blaze was a very dangerous one to handle and precaution had to be taken. It was only through the good work of the fire fighters that the damage to the plant was kept down to a small figure.

Petition for Increase Favored by Muskegon Heights Council

The Muskegon Heights Gas Company has asked to be granted permission to increase the price of gas. Mayor Stear, after thorough investigation, declares that he and the council members are ready to favor the petition, deeming the claim for higher rates justified.

At a meeting of the council held recently the matter of granting an increase in the price of gas furnished to the people of Muskegon Heights was thoroughly discussed. The light-

ing committee, which had been appointed to investigate the situation and to examine the books of the gas company, reported facts which Mayor Stear declares convinces him that the claim for higher rates is fair.

The present rate of $1.35 per 1,000 cu. ft. was established when gas oil, from which the gas is made, could be bought for 3½ cents per gallon, and coke sold for $5.65 per ton. At present gas oil costs 9½ cents per gallon and coke sells for $11.80 per ton. In addition, the price of labor has advanced 25 per cent.

This increased overhead cost, the gas company maintains, is compelling it to operate at a loss. So it asks that it be permitted to charge a rate of $1.50 per 1,000 cu. ft. This rate, the company states, would give no margin of profit, but would make it possible for them to be merely self-sustaining, which is all that the company asks while the war is in progress.

According to Mayor Stear, the service given by the company is excellent and the gas of the best quality, a test recently made showing it to register 600 B.t.u.

Public Service Commission of Indiana Calls a Conference on Gas Situation

(*Continued from page* 378)

Maxon, Muncie, of the Central Indiana Gas Company; Samuel Ashby, Indianapolis corporation counsel; Richard F. Broadbent, city attorney of Elwood; J. B. Klumpp, Philadelphia, Pa., chief engineer of the American Gas Association; Charles Brossman, Indianapolis, engineer representing the Federal Fuel Administration, and Ernest Van Arsdel, Indianapolis, vice-president of the Interstate Public Service Company.

The other committee which considered at the Indianapolis meeting the general problem of the sliding rate scale based on the quality of gas delivered to consumers was made up as follows: I. J. Phillip, Washington, Government expert of the Ordnance Department; E. E. Price, of the Gary Heat, Light & Water Company; Thomas Donahue, Lafayette, of the Northern Indiana Gas & Electric Company; John Graham, Mayor of Franklin; John McPhee, Muncie city attorney; C. H. Underwood, Indianapolis, chemist in the city engineering department; H. B. Heign, engineer of the public service commission; H. Dannetall, of the Evansville Public Service Company; Carl H. Mote, secretary of the public service commission; Prof. H. C. Peffer, of Purdue University; Morse Delplain, Hammond, Northern Indiana Gas Company; James Dunbar, New Albany, Interstate Public Service Company; E. G. Jones, Goshen & Warsaw Gas Company, and W. A. McInerny, South Bend.

Desire to Help Gas Companies Combined with Desire to Protect Public

When the original conference convened Paul F. Haynes, a member of the Indiana Public Service Commission, made an extended statement of the general problems confronting the commission with relation to the war-time regulation of gas service, and pointed out conclusively that the commission's viewpoint in the present situation was one in which a desire to help the gas companies is combined with a desire to protect as adequately as possible the general gas-consuming public of the State. Mr. Haynes, E. I. Lewis, chairman of the commission, J. W. McCardle, Carl H. Mote, secretary of the commission, and Harry O. Garman, chief engineer of the commission, represented the State body at the conference. Mr. Haynes explained in his opening statement that the conference had been called by the commission in the attempt to work out some gas standards and some agreement that will allow the gas companies of Indiana "to supply the most efficient gas service possible under war-time conditions, and that will not result in hardship or unjustly increased operating costs to the companies, but that will nevertheless result for the best interests of the public wherever possible." He explained that the present 600 B.t.u. standard really had been imposed during the regime of a former commission, and he explained the commission's recent orders in the Kendallville, Auburn, Garrett, and Vincennes gas cases, wherein the 600 B.t.u. standard had been maintained by the commission and its tentative sliding scale of rates based on the standard of gas supply had been placed in effect. Mr. Haynes said, with relation to these orders, that "it may have been unwise in this critical time for us to take such drastic action, but we feel that we were forced to it on behalf of the public." Mr. Haynes then explained the theory on which the commission in its tentative scale proposal had provided that where a company dropped below 400 B.t.u. in its service the entire rate of the consumer automatically became eliminated. He said that this part of the commission's recent orders had been attacked, and that the purpose of the commission at the conference was to explain its attitude on this part of the orders and to give "the other side of the question" a chance to set up its case in court.

600 B.t.u. Standard Attacked and Set of Rules Set Out

At this point in the conference F. G. Mulholland, president of the Fort Wayne & Northern Indiana Gas & Electric Company, and chairman of a special committee of the Indiana Gas Association, read to the commission a statement in which the standard of 600 B.t.u. was attacked by the gas companies and a substitute standard and set of rules and much argument with relation to present gas conditions were set out. This report declared that "under normal operating conditions a calorific value between 535 and 550 B.t.u. per cubic foot is probably the most economical standard. Under abnormal conditions now prevailing other States, however, have adopted a standard of 528 B.t.u." Various gas men discussing the report made by Mr. Mulholland were of the opinion that a penalty should not be imposed by the commission in instances where the gas supplied consumers fell below the standard, but that the failure to adhere to the standard merely should be reported to the company, and these men declared that the usual publicity devices would suffice to compel any recalcitrant company to adhere to any such standards that might be set.

This report formed the backbone of much of the subsequent discussion at the conference.

At the same time the commission's engineering staff laid before the conference its tentative set of rules and regulations to govern the standards of service for artificial gas utilities in the State of Indiana, and it was explained that although very serious consideration had been given to each item of the promulgated rules it was true that the promulgation was purely tentative, and that the later action of all interests concerned in the gas situation probably would result in the modification of at least the actual standard of service set out in the ten-

tative rules and the sliding scale proposal. Complete copies of the tentative rules, however, were distributed to all those at the conference, and these now are being studied deeply by the members of the special committees, who are to make recommendations to the commission, and by all gas officials throughout the State.

S. F. Spohn, formerly Mayor of Goshen and now a member of the Indiana Municipal League, spoke to the conference, and declared that the Municipal League had not had opportunity to go into the scientific considerations necessary for an intelligent presentation of the subject, and that it vitally affected the towns and cities of the State. He made it clear, however, that the Municipal League felt that the commission, after making a complete investigation of the case, would take action that would be for the best interests of all parties concerned at this critical war-time.

Estimates vary in the minds of the members and engineers of the public service commission as to when the negotiations now being worked out in reference to the Indiana gas situation will be concluded to a point that will allow the commission to make its permanent order establishing gas standards of service. One estimate said the matter might be decided definitely by the latter days of November, and another man high in the State governmental circles feels that the problem is so large that it probably would be Jan. 1 before the commission can decide its exact course.

Prior to the final decision of the commission, with reference to the whole gas problem, the companies themselves will be under the necessity of working out their individual problems in ways that conform as nearly as possible to the commission's previous orders. With gas-coal conditions and other war-time troubles confronting companies, and with winter months coming on, it is very probable that few of the companies will be able to abide by "the letter of the law" as it has been laid down in former pre-war years. The general public throughout the State, however, knowing that the war has brought on all utility companies burdens which have been too onerous to bear in the light of pre-war regulation, will be sympathetic in general in its treatment of the companies' efforts to "do the best they can."

Gas Question Decided — New Company Formed

The Batavia (N. Y.) Town Board has unanimously decided to grant the franchise to the Alden-Batavia Natural Gas Company so that that company may bring manufactured gas into this territory by piping it from Clarence.

It has been announced that the several gas companies, including the Alden-Batavia Natural Gas Company, the Akron Natural Gas Company, Ontario Natural Gas Company and other companies serving territory along the south shore of Lake Erie, will be consolidated and be called the Public Light, Heat & Power Company, which will serve its customers with manufactured gas.

This company will serve Batavia, and now the officials of the company say that as soon as the Alden people give the company the franchise it will only be a matter of a short time before Batavia will have the manufactured gas. Pipes have been secured and distributed along the route from Tonawanda to Clarence. A hearing before the public service commission will be held in order to settle the rates.

Wisconsin Company Allowed Increase

The railroad commission recently announced an increase in rates for the Wisconsin Gas & Electric Company. The cities affected by this increase are Kenosha, Burlington, Watertown, Menomonee Falls and twenty-five or thirty smaller towns and villages.

Suffolk (Va.) Company to Increase Its Rates

The Suffolk (Va.) Gas-Electric Company in a recent advertisement advised its consumers that it was compelled by the exigency of the times to increase its rates.

The manager of the company stated that at the present time it cost more to manufacture the gas sold than Suffolk citizens pay for it. In other words, the company loses each month on actual operating expenses.

The manager further stated that the coal they are now using is costing about 35 per cent more than it did the first of the year and the freight on this coal 40 per cent more; coke and freight on coke each about 36 per cent more; oil, about 20 per cent more, delivered. Salaries and wages have increased from 25 to 60 per cent over what they were eight months ago. Yet in asking for a 20 cents per 1,000 ft. increase the company is only asking for a 13 per cent increase in its rates and revenue.

To Segregate Oil and Gasoline Plants

At a meeting of the directors of the Oklahoma Natural Gas Company held in Tulsa, Okla., a resolution was adopted authorizing the segregation of the oil production and gasoline plants from the gas company.

A new company with a capital of $3,000,000, par $250, will be organized to take over the oil production, with leases on 100,000 acres, and the gasoline plants. The stock of the new company will be distributed to the present stockholders of the Oklahoma Natural Gas Company on the basis of 30 per cent of holdings. Dates for this will be announced later.

Rate Increased and Discount Reduced on September Bills Sent Out by the Dedham & Hyde Park Company

The Dedham & Hyde Park (Mass.) Gas & Electric Light Company has increased the price of gas and reduced the discount that was previously allowed when bills were paid ten days after rendered.

The bills rendered for September showed that the price had been advanced from $1.15 to $1.25 per 1,000 cu. ft. The bills also showed that hereafter the company would not allow the usual 10 per cent discount on the bills paid promptly, but would allow the consumers 5 per cent only.

North Attleboro Company Announces Increase

The North Attleboro (Mass.) Gas Light Company announces that, owing to increased cost of production, the price of gas after Nov. 1 will be $1.50 per 1,000 cu. ft., with a discount of 15 cents per 1,000 cu. ft. allowed for bills paid on or before the 16th of the month.

The new rate is a 25-cent increase.

Court Grants Injunction in Davenport Rate Case

The People's Light Company, of Davenport, Iowa, may charge $1.20 per 1,000 cu. ft. for gas, an increase of 30 cents over the present rate.

Such was the price fixed by a temporary injunction issued recently in Federal court by Judge Martin J. Wade on the application of the company.

The city is restrained from interfering with the new rate schedule fixed by the court pending a final disposition of the case in the usual manner.

The company contended the 90-cent rate under present conditions was confiscatory. Recently an increase of gas rates was denied by the city council.

Every gas consumer will be given a receipt for the amount paid. In case the rate as fixed by Judge Wade finally is lowered a refund will be made for amounts paid in excess of the final price. The company posted a bond for $100,000 to protect gas consumers on the refund.

Under the schedule as temporarily approved by the court, Davenport gas rates will be:

50,000 cu. ft., $1.20 per 1,000.

50,000 to 100,000 cu. ft., $1.10 per 1,000.

100,000 to 150,000 cu. ft., $1.05 per 1,000.

150,000 to 250,000 cu. ft., $1.00 per 1,000.

Niagara Falls Company Charges Increased Rate on September Bills

The Niagara Falls (N. Y.) Gas & Electric Light Company sent out to its consumers their bills for the month of September. The bills are on the basis of the new rate of $2.20 per 1,000 cu. ft. of gas, with 20 per cent discount for payment within ten days. The latter rate was fixed in the new tariff filed with the public service commission last July. The tariffs were effective on Aug. 15, but the company did not charge the increased rate in its August bills.

That the company has the right to charge the increased rates in its September bills despite the complaint filed by Mayor George W. Whitehead in behalf of the city, upon which a hearing is to be held by the public service commission at Buffalo next Saturday, was conceded by Corporation Counsel Robert J. Moore. He added that in case the public service commission upholds the city's complaint and requires the company to return to its old rates there will be no rebate due consumers on their September bills.

It was upon direction of the city council that the corporation counsel wrote the public service commission, following the filing of the new gas tariff, and asked that the gas company be restrained from making it effective because Dr. Wilcox, the expert engaged by the city, would not have sufficient time before Aug. 15 to prepare the report of his investigation, upon which the city's complaint would be based. In reply Commissioner Hill, of Buffalo, said the public service commission had no authority to restrain the new schedules.

Hearing Given Petition of Palmer Residents on Reduction of Price

The gas and electric light commission gave a public hearing in District Court room recently on the petition of the inhabitants of Palmer for a reduction in the price of gas. The Worcester County Gas Company, which serves this town, promulgated a rate of $2.50 per 1,000 ft. July 1. The petitioners believe this rate excessive and desire to have it lowered.

The company gave figures showing that the rate no more than covers cost, including a charge of 3 per cent for depreciation. It has not been the custom to charge off anything for depreciation, as it has never had any profits to take care of such a charge. It was figured that the charge for depreciation amounts to about 39 cents per 1,000 ft. The company has been in business here about thirteen years and has lost money nearly every year.

Judge T. W. Kenefick, town counsel, appeared for the town, and in his argument suggested that too high a price will result in the dissolution of the company, because of loss of business. He argued that it would be wiser if the company were to defer its depreciation charge until a later period when costs may reasonably be expected to be lower and when the company may expect a larger patronage by reason of the growth of the town.

The question of separating the Palmer plant from the portion of the system which serves the towns in Worcester County was touched upon. The company's treasurer is to submit to the commission figures showing the cost of manufacturing and distributing from the Palmer plant, after which the commission will make a finding.

Temporary Rate Granted Muscatine Company

Judge M. J. Wade, in the United States Court at Davenport, Iowa, recently granted a temporary injunction to the Muscatine Lighting Company restraining the city of Muscatine from interfering with the company in the matter of the rates assessed for illuminating gas. A rate of $1.55 per 1,000 ft. was established temporarily by the order of the court. The company was instructed to furnish a bond in the sum of $50,000 to cover refunds if such should be ordered at a later date when the question of rates is finally adjudicated.

The issuance of the writ had been anticipated by the order of the court entered at Iowa City some two weeks ago. At that time the judge intimated that an injunction would issue, but he asked that both parties present supplemental argument in support of their contentions. He also urged a temporary compromise if such could be arranged.

The company asked the injunction some time ago when the city refused to grant permission to the company to increase its rates. The action was brought on the grounds that the present rate was confiscatory, in that the illuminant could not be manufactured in war-time at the prevailing price.

Notice of Increase Sent to Adams Consumers

Manager B. K. Cook of the Adams (Mass.) Gas Light Company advised members of the Adams Board of Trade that with the bills sent out to consumers of gas in Adams at the end of September notice of a raise was given in the price of gas. The price now, $1.15 per 1,000 cu. ft., will be raised 20 cents and the price will be $1.35 per 1,000 cu. ft. There will be the usual discount of 10 per cent, as in the past, for prompt payment of bills, and this will leave the net price $1.25 per 1,000 cu. ft.

The new rates became effec-

tive, as did the minimum charges, on Oct. 1, and will appear on the bills sent out in November.

Increase Asked by Savannah Company

Increases of 15 cents per 1,000 cu. ft. throughout the graduated scale of rates charged by the Savannah Gas Company are asked for in a petition filed Oct. 7 with the State railroad commission.

The present rates range from 80 cents to $1.15 per 1,000 cu. ft., and the company asks permission to charge from 95 cents to $1.25 per 1,000 cu. ft.

The commission will hear evidence and arguments on both sides of the question on Oct. 22.

New Rate Tariff Filed by Pottsville Company

The Pottsville (Pa.) Gas Company, operating in Pottsville, Mount Carbon and Port Carbon, Schuylkill Haven and Cressona, has filed with the public service commission a new tariff of rates to become effective on Nov. 1, 1918, making the following increases in existing rates:

Gross rates increased from $1.25 and $1.50 to $1.50 and $1.60 per 1,000 cu. ft.

Discount of 10 per cent and 20 per cent changed to a uniform 10 cents per 1,000 cu. ft.

Minimum charge to domestic consumers increased from 50 cents to $1 per month.

Personal Notes

ALBERT M. BARNES, president of the Cambridge (Mass.) Gas Light Company, was presented with a wall clock from the Basement Club, composed of the male employees of the company's office, on the occasion of his seventieth anniversary. Vinton W. Mason, treasurer of the company, made the speech of presentation and Mr. Barnes feelingly responded.

E. D. MCDONALD, for some time past the business manager of the Washington (Ohio) Gas & Electric Company, has accepted the position of general manager of the Pocatello (Idaho) Gas & Electric Company, and left Washington recently to take charge of his new position.

A. C. BABSON has been appointed manager of the property of the Wisconsin Gas & Electric Company, Kenosha, Wis. He was formerly at the Watertown, Wis., plant of the company. He succeeds G. H. Cook, who has joined the military service.

THE CONSOLIDATED GAS, ELECTRIC LIGHT & POWER COMPANY, of Baltimore, Md., held the annual meeting of the stockholders Oct. 2. The following board of directors were unanimously re-elected by the shareholders: J. E. Aldred, chairman; Thomas Aitken, London, England; John L. Bailey, Baltimore, Md.; Howard Bruce, Baltimore, Md.; Charles E. F. Clarke, New York, N. Y.; Charles M. Cohn, Baltimore, Md.; Charles T. Crane, Baltimore, Md.; Charles H. Dickey, Baltimore, Md.; Henry J. Fuller, New York, N. Y.; Sir H. S. Holt, Montreal, Canada; Norman James, Baltimore, Md.; Morton Otis, London, England; William Schmidt, Jr., Baltimore, Md.; Siegmund B. Sonneborn, Baltimore, Md.; Frank M. Tait, New York, N. Y.; Herbert A. Wagner, Baltimore, Md.; S. Davies Warfield, Baltimore, Md., and Frederick W. Wood, Baltimore, Md. Subsequent to the meeting of the shareholders, the board of directors met and reelected the officers and executive committee for the company. The officers are: Herbert A. Wagner, president; Charles M. Cohn, vice-president; Charles E. F. Clarke, vice-president; John L. Bailey, treasurer, and William Schmidt, Jr., secretary.

ELISHA C. ANDREWS has resigned his position as superintendent of the Strafford-York Gas Company, Rochester, N. Y., which he has held for some years. His resignation was handed in Aug. 24, to take effect Oct. 1. Since undergoing a surgical operation several months ago Mr. Andrews has not recovered as rapidly as he expected, and finds that he must give up active work with the company. He has been a most efficient and popular superintendent. He will take a rest before engaging in other work. His place will be taken by Mr. Morgan, of Indiana.

FREDERICK ROYAL HAMMETT, vice-president of the Crew Levick Company, died recently in a Philadelphia hospital of pneumonia, after a short illness. He was born in Philadelphia on March 13, 1884, his father being owner of the Aetna Oil Company, which consolidated with Crew Levick in 1889. He was educated at Germantown Academy and graduated in law at the University of Pennsylvania in 1904. He fancied oil more than law, however, and became associated with Crew Levick, and in 1910 was made assistant treasurer, and four years later president. When William Muir combined his refineries with Crew Levick he became president and Mr. Hammett vice-president.

Construction Notes

Denver to Furnish Toluol at Cost

Government Erecting Plant for Its Extraction

As a war move the Denver (Col.) Gas & Electric Light Company will furnish toluol to the Government at the actual cost of production. In order to obtain this product the Government is erecting a plant for its extraction from the gas. All gas produced by the Denver company will pass through the toluol plant, where a mixture of toluol and benzol will be removed. This crude product will be sent to Pueblo for refinement and separation.

At the present time the foundations for the toluol plant have been laid and work is proceeding as rapidly as possible.

Foundation Being Built for Building of Taunton Company

A foundation is being put in on West Water Street for a gas building for the Taunton (Mass.) Gas Light Company. This is to be a one-story brick building, 20 x 38, and will cost $1,000. L. M. Witherell & Sons, 29 Court Street, Taunton, are the contractors.

Portsmouth Assured of Adequate Gas Supply Through Government Aid

Government to Supply Labor and Finance Improvement to Plant

Under an agreement just reached between the Portsmouth (Va.) Gas Company and the United States Housing Corporation, the Government settlements at Paradise Creek and Villa Heights will not only be assured of gas, but a substantial surplus will be left for the city. In other words, the question of a gas

supply for Portsmouth this winter will be solved.

This will be done through active co-operation of the Government, which will not only finance the proposition, but will supply the necessary labor. The enlargement of the plant and the accompanying improvements are expected to be ready by Dec. 1.

The improvements will include the installation of more machinery at the present plant and the laying of about 7½ miles of pipe to and through Villa Heights and Paradise Creek. The cost of the work is estimated at from $175,000 to $200,000, which will be loaned to the gas company by the Government at 5 per cent interest annually. This fund will not have to be repaid until two years after the close of the war.

B. B. Ferguson, president of the gas company, recently stated that the matter was taken up by the Housing Corporation some time ago, and that he assured them that he could handle the proposition if given aid from the Government. He has been notified that his suggestions have been adopted, and the work of laying the large gas main and of enlarging the gas plant will begin at once.

So anxious is the Government to have this work done that it has offered to commandeer the necessary machinery if Mr. Ferguson is unable to secure it on the open market. The Government also will supply the labor for all the work, which, however, will be done under the absolute supervision of Mr. Ferguson.

The improvements, as contemplated, will call for an enlargement of the present plant by at least one-third.

Ridgway Constructing Pipe Line Three Miles in Length

The Ridgway (Pa.) Light & Heat Company is engaged at the present time in constructing a pipe line from Ridgway to a piece of land owned by the concern near the Steis and Murphy farms about 3 miles from town on the Boot Jack Road. It is hoped to have the line finished by the end of the month.

The company drilled five wells in the Boot Jack section during the past summer, some of them being good producers. With the line completed officials of the company are sure they can easily supply this section with plenty of gas this winter, no matter how cold the weather.

Consolidated Gas, Electric Light & Power Statement

For the year ended June 30, 1918, the Consolidated Gas, Electric Light & Power Company, of Baltimore, Md., reports surplus after taxes and charges of $1,157,565, equivalent to $8.04 a share on the stock, as compared with surplus of $1,446,421 or $10.05 a share in the preceding year.

Income account for the fiscal year ended June 30, 1918, compares as follows:

	1918	1917	1916	1915
Gross income	$10,610,588	$8,408,809	$7,431,769	$6,789,402
Expenses and taxes	6,415,684	4,480,165	3,848,076	3,576,583
Charges	2,071,339	1,672,223	1,580,058	1,640,361
Net income	$2,132,565	$2,346,421	$2,003,635	$1,572,458
Depreciation, etc	725,000	600,000	550,000	460,000
Contingent reserve	250,000	300,000	134,542	.....
Bond discount	.....	.....	90,000	.....
Balance	*$1,157,565	$1,446,421	$1,220,093	$1,112,458
Dividends	1,150,864	1,305,746	1,131,804	1,064,629
Surplus	$6,701	$140,675	$97,289	$47,829

*Equivalent to $8.04 a share earned on $14,385,800 capital stock, compared with $10.05 earned the previous year.

The Old Colony Gas Company reports as of Sept. 9, 1918, total assets of $1,406,013, compared with $1,387,392 the same time last year. Cash and debts receivable are placed at $35,004, compared with $50,991, and merchandise, material and stock in process stand at $33,448, compared with $44,577 last year. Notes payable amount to $319,843, compared with $293,373, and the profit and loss surplus is carried at $14,090, compared with $18,716 previously.

The Haverhill Gas Light Company, as of June 30, 1918, shows total assets of $1,230,441, which compares with $1,220,476 the same time a year ago. Cash and debts receivable show a contraction from $47,005 to $14,677, and merchandise, material and stock in process stand at $93,850, against $72,268. Accounts payable amount to $50,977, against $20,718 last year; accounts not yet due are carried at $11,109, against $8,810, and the profit and loss surplus stands at $136,701, against $455,926 previously.

The Investors Oil & Gas Company, of New Orleans, has declared a dividend of 2 per cent for October.

The General Gas & Electric Company and subsidiary companies report preliminary gross revenue for the month of September, 1918 and 1917, and comparison as follows:

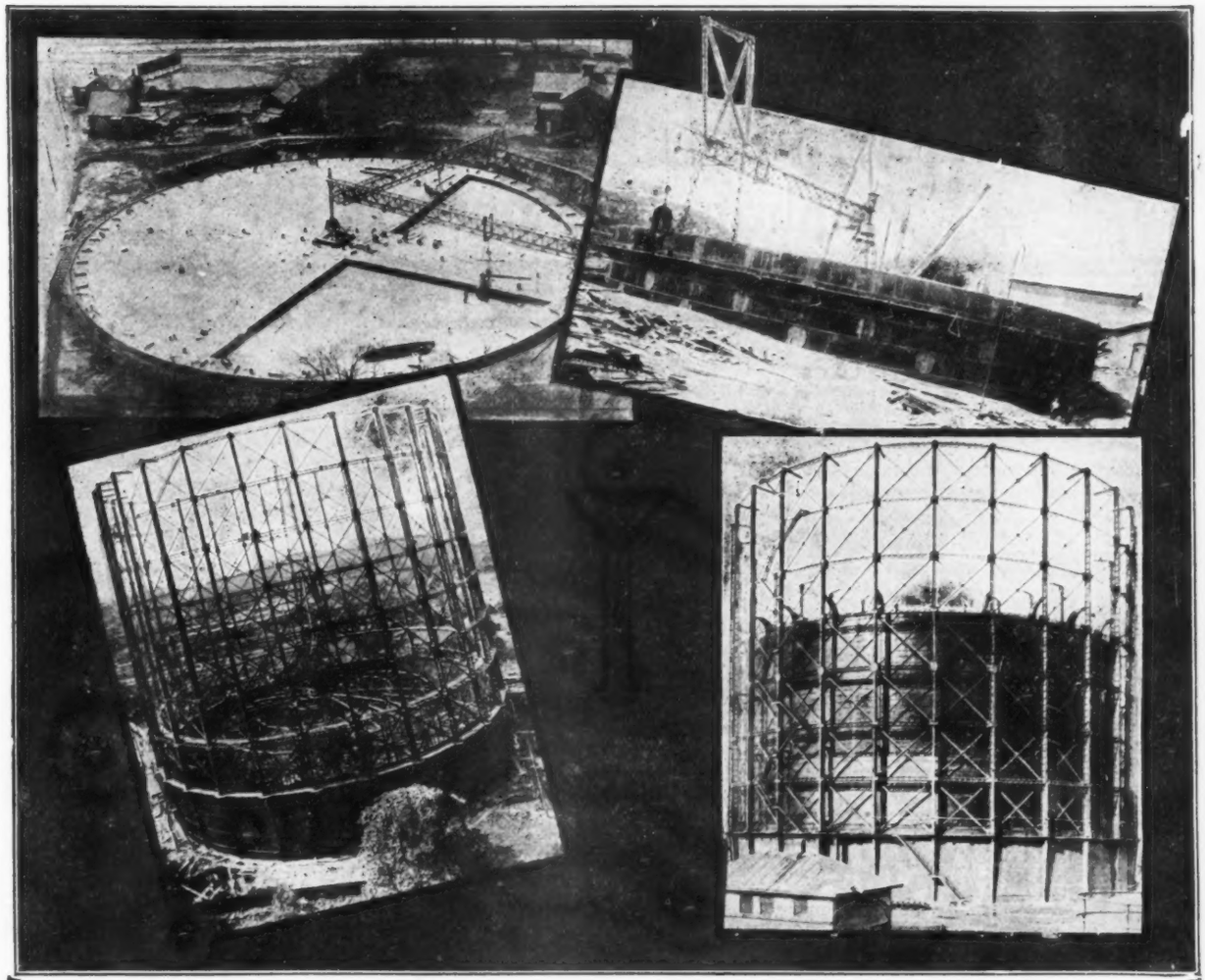
System	1918	1917	Increase—Decrease Amount	Per Cent
Rutland	$40,205.29	$42,263.33	$6,941.96	16.3
Northwestern Ohio	40,415.00	30,438.60	9,976.40	32.8
Sandusky	35,158.81	35,080.19	78.62	0.2
Binghamton	37,743.61	30,318.70	7,424.91	24.4
Sayre	10,416.58	8,285.35	2,131.23	25.7
New Jersey	27,030.16	18,564.03	8,466.13	45.6
Interurban Gas Company	1,292.17	973.84	318.33	32.7
Totals	$201,261.62	$165,024.04	$35,327.58	21.4

The Mexican-American Oil Company, incorporated Wilmington, Del., to lease lands for drilling thereon for oil and gas; to market the same. Capital, $5,000,000.

The Allied Oil & Refining Company, Wilmington, Del., mining and boring for petroleum and natural gas. Capital, $100,000.

The Blackstone Valley Gas & Electric Company reports August gross $197,612, increase $39,476; net $48,687, increase $102; surplus after charges $26,554, decrease $863; twelve months' gross $2,254,316, increase $369,041; net $678,848, increase $7,690; surplus after charges $415,492, decrease $3,297.

The Oklahoma Natural Gas Company, 2 per cent, payable Oct. 20 on stock of record Oct. 9.

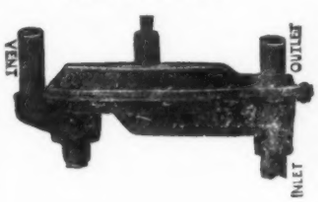


RITER-CONLEY COMPANY

STEEL CONSTRUCTION

PITTSBURGH

HIGH PRESSURE



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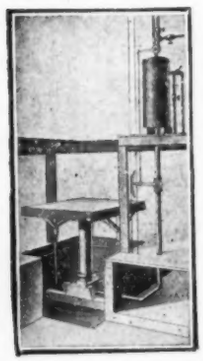
With The Equipment & Appliance Manufacturers

Conducted by Business Department of American Gas Engineering Journal

Steam-Hydraulic Elevators for Gas Plants

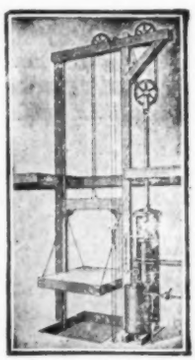
Elevators can be classified as one of the most convenient and necessary pieces of equipment around a gas plant.



DIRECT ACTING

The two illustrations herewith show a direct acting and a double geared Steam-Hydraulic elevator. In the double geared style all the machinery is above ground. The frame is made of wood, and the cage has two or three separate lifting ropes as well as safety catches. All parts are made heavy to stand hard work and bad usage.

For the direct acting style a well is required. When the water is placed upon the upper floor, the head of water partly counterbalances ram and platform. The water cylinders can be placed anywhere.



DOUBLE GEARED

These elevators are operated by simply running a small steam pipe to the nearest boiler. The use of pumps is unnecessary. By turning steam into the closed cylinder partly filled with water, the water takes at once the same pressure as the steam, and can be used for lifting, pushing, pulling and similar operations. The steam consumption is too small to be taken into consideration.

This is two of several styles of steam-hydraulic elevators made by Craig Ridgway & Sons Company, Coatesville, Pa.

Cast Iron Gas Meters

A cast-iron gas meter, manufactured by the Sprague Meter Company, of Bridgeport, Conn., is described in their catalogue No. 6.

One of the features of this meter is the elimination of the need of soldering irons or special skill in making repairs. Every gas company can do its own repairing at its plant, thereby saving the expense and time in shipping to a distant repair shop.

The case of cast iron consists of a center casting, a front, back, top and an index box. These parts are securely fastened together with screws, all joints being carefully machined to insure against leaks. This case is practically rustproof. Owing to its small compact construction, this meter can be set in cramped and limited spaces.

Coke Oven Fuel Gas Regulation

In the average coke oven plant it has been found essential to deliver a gas supply of as even volume and pressure as possible to the oven burners, in order to maintain as even an oven temperature as possible, thus producing a higher quality of coke.

A governor to produce best results has to be capable of closing its valves tight instantaneously during a so-called "reversal" when a battery of burners heating the ovens on one side are shut down and before the burners on the other side are opened up, and must also open instantaneously to prevent a drop in pressure due to the sudden opening of the burner cocks, and must not be affected by this reversing operation on the part of the other batteries of ovens that may be fed from the same source.

The Connelly Fuel Gas Governor has been designed for this particular work. It is capable of sensitive adjustment, operated with the minimum of pressure loss through friction, and is so constructed that extremes in exterior temperatures will not affect it, or detract from its working efficiency or durability. It is so designed that the prevalence of naphthalene sometimes in large quantities will not collect to obstruct the valve torts or interfere with the operation of the governor. Its working parts are easily accessible and can be quickly removed without taking the machine out of line.

This is one of many pieces of apparatus of interest to gas companies manufactured by the Connelly Iron Sponge & Governor Company, of New York.

CONNELLY FUEL GAS GOVERNOR

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